

CALIFORNIA ENERGY RESOURCES CONSERVATION  
AND DEVELOPMENT COMMISSION  
CLIMATE CHANGE ADVISORY COMMITTEE

MEETING

SACRAMENTO MUNICIPAL UTILITY DISTRICT  
CUSTOMER SERVICE CENTER - RUBICON MEETING ROOM  
6301 S STREET  
SACRAMENTO, CALIFORNIA

WEDNESDAY, APRIL 6, 2005

9:25 a.m.

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COMMITTEE MEMBERS PRESENT

James D. Boyd, Chairperson

Susan Brown  
California Energy Commission

Ralph Cavanagh  
National Resources Defense Council

Cynthia L. Cory  
California Farm Bureau Federation

Robert C. Heald  
University of California, Berkeley

Peggy Duxbury  
Calpine

Edward A. Helme  
Center for Clean Air Policy

Michael M. Hertel  
Southern California Edison

Josh Margolis  
Cantor Fitzgerald

Jason Mark  
Union of Concerned Scientists

Michael T. Meacham  
City of Chula Vista

Denise Michelson  
BP

Robert T. Parkhurst  
Hewlett-Packard Company

Wendy Pulling  
Pacific Gas and Electric Company

Jan Schori  
Sacramento Municipal Utility District

John Shears  
Center for Energy Efficiency  
and Renewable Technologies

APPEARANCES (continued)

COMMITTEE MEMBERS PRESENT (continued)

Abby Young  
International Council for  
Local Environmental Initiatives

Charlie Zender  
University of California, Irvine

ALSO PRESENT

Charles M. Shulock  
Air Resources Board

Dan Adler  
California Public Utilities Commission

Chuck Solt  
Lindh and Associates

Andrew T. O'Hare  
Portland Cement Association

Michael H. Scheible  
Air Resources Board

Stacey Davis  
Center for Clean Air Policy

Michael March  
Western United Dairymen

George Simons  
California Energy Commission

Guido Franco  
California Energy Commission

Greg Dierkers  
Center for Clean Air Policy

Doug Wickizer  
California Department of Forestry  
and Fire Prevention

APPEARANCES (continued)

ALSO PRESENT (continued)

Tom Fulks  
MIGHTYCOMM

Andy Frank  
UC Davis

Michelle Passero  
The Pacific Forest Institute

Andrew Hoerner  
Redefining Progress

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1 P R O C E E D I N G S

2 CHAIRPERSON BOYD: Good morning. I'm  
3 Jim Boyd, a Commissioner with the Energy  
4 Commission and Chair of this Committee, for those  
5 who don't know me, and I understand we have a, a  
6 radio audience, I guess I should say.

7 I'd like to welcome everybody, and I  
8 pardon -- pardon my back to the audience. That's  
9 the way rooms have to be on occasion. I want to  
10 welcome everybody to another meeting of the  
11 Climate Change Advisory Committee, the Energy  
12 Commission's Advisory Committee, and this is our  
13 fourth meeting. I particularly want to thank our  
14 host for this meeting, the Sacramento Municipal  
15 Utility District, my utility district --

16 (Laughter.)

17 CHAIRPERSON BOYD: I live close enough  
18 to this building I could walk over. Anyway, I  
19 want to thank Jan Schori, and I understand Bud  
20 Beebe was doing a lot of work to help, help folks  
21 out while Jan was away, and I understand  
22 congratulations are in order, Jan. Jan is just  
23 back from her honeymoon, so. So I let your secret  
24 -- secret out.

25 I don't see our newest member of the

1 group in the room, so I won't welcome them unless  
2 they appear here.

3 Since we last met I think probably all  
4 of us have observed the fact that the subject of  
5 climate change has not gone away. Quite the  
6 contrary, it becomes almost on a daily basis a  
7 subject that is discussed somewhere in the world,  
8 and more and more attention and concern is  
9 directed to the subject, so I think it's  
10 propitious and relevant that, that we are meeting  
11 for our fourth meeting and continuing to address  
12 the subject.

13 Since our last meeting I know the staffs  
14 of various state agencies who will report here  
15 later in the agenda have, have continued to pursue  
16 the subject, and I know our committees have  
17 diligently been pursuing the subject, which we'll  
18 hear more about, so I don't want to take too much  
19 time so we can get into the agenda.

20 I do think the first thing we should  
21 probably do for the benefit of those in the  
22 audience who can't read the name tags that are  
23 going sideways, if they're sitting in one part of  
24 the room, and certainly for our listening  
25 audience, is to just go around the room and



1       introduce ourselves and who we represent. So  
2       Susan, would you like to start?

3               MS. BROWN: My name is Susan Brown. I'm  
4       with the California Energy Commission.

5               MR. SHEARS: My name is John Shears, I'm  
6       with the Center for Energy Efficiency and  
7       Renewable Technologies.

8               MS. SCHORI: Yes, I'm Jan Schori, and  
9       I'm the General Manager here at SMUD. Welcome,  
10      everybody.

11              MR. HEALD: Bob Heald, University of  
12      California, Berkeley, representing the forest  
13      sector.

14              MR. PARKHURST: Good morning. Robert  
15      Parkhurst, representing Hewlett Packard and the  
16      Silicon Valley Leadership Group, formerly the  
17      Silicon Valley Manufacturing Group.

18              MS. MICHELSON: Good morning. My name  
19      is Denise Michelson, with BP.

20              MR. MEACHAM: Good morning. Michael  
21      Meacham, City of Chula Vista.

22              MS. PULLING: I'm Wendy Pulling, with  
23      Pacific Gas and Electric Company.

24              MR. CAVANAGH: Ralph Cavanagh, Natural  
25      Resources Defense Council.

1                   MR. HELME: Ned Helme, the Center for  
2                   Clean Air Policy. We're providing staff support  
3                   to the effort.

4                   MR. HERTEL: Mike Hertel, with the  
5                   Southern California Edison Company.

6                   MR. MARGOLIS: Josh Margolis, at Cantor  
7                   Fitzgerald Brokerage.

8                   MS. CORY: Cynthia Cory, California Farm  
9                   Bureau.

10                  MR. ZENDER: Charlie Zender, University  
11                  of California, Irvine, Department of Earth System  
12                  Science.

13                  MR. MARK: Jason Mark, Union of  
14                  Concerned Scientists.

15                  MS. DUXBURY: Peggy Duxbury, Calpine  
16                  Corporation.

17                  MS. YOUNG: Abby Young, International  
18                  Council for local Environmental Initiatives.

19                  CHAIRPERSON BOYD: Thank you, everyone,  
20                  and good morning, and thank you for coming.

21                  Just quickly, for the record, this  
22                  Advisory Committee was formed in response, as you  
23                  all know, to, to state legislation that authorized  
24                  the Energy Commission to establish an Advisory  
25                  Committee to make recommendations to the

1 Commission on the most equitable and efficient  
2 ways to implement national and international  
3 climate change requirements here in California,  
4 and that's what we have all directed our attention  
5 to.

6 At our opening meeting and subsequent  
7 meetings I, representing the Energy Commission,  
8 have asked all our advisory group to, to help us  
9 formulate and recommend a workable set of  
10 strategies for reducing greenhouse gas emissions  
11 in California, and that we just ask again today,  
12 as I have in the past, that what we really look  
13 forward to today is a lot of discussion and a lot  
14 of feedback, so to speak, on the work that has  
15 been going on to date with regard to strategies  
16 which ultimately we want to recommend here in the  
17 state, and we will hear quite a bit today from the  
18 Center for Clean Air Policy with regard to the  
19 work they've been doing for us, as is -- as well  
20 as we will hear from, from our, our own committees  
21 and, and the work that they are doing.

22 Our, we have many targets in this  
23 effort. We have multiple agendas to satisfy in  
24 the state. A key one to the Energy Commission, of  
25 course, is to, to have and to provide input

1 through this mechanism to our 2005 Integrated  
2 Energy Policy Report, which, which we will be  
3 submitting to the legislature in November of this  
4 year, and which will be our second total re-do of  
5 the Integrated Energy Policy Report, or Energy  
6 Report, as we're choosing to call it these days.  
7 It's hard to that tongue-twister out, since it  
8 will be the second major report since the  
9 legislature asked the Energy Commission to do this  
10 kind of work, really after the electricity sky  
11 fell on all of us here in California.

12 So with that, I'm going to mention a  
13 couple of logistics. This is a public meeting per  
14 the law that established this advisory committee.  
15 And on our agenda later in the day we will provide  
16 time for the public to make comments they'd like  
17 to make on what we are talking about today, and,  
18 and what we've done to date. The meeting is being  
19 transcribed here, as you can see, to help all of  
20 you and the staffs put together and reflect back  
21 on what you've heard in order to put together your  
22 thoughts and your recommendations. So I ask you,  
23 when you, when you do say something, to identify  
24 yourself for the record, for the benefit of the  
25 gentleman there who's transcribing the meeting.

1           Those -- those by phone know they can  
2       participate by phone by calling the number listed  
3       in the notice for this meeting, and we will have a  
4       working lunch today for the Advisory Committee and  
5       staff members. At the end of today we will talk  
6       about future logistics.

7           We have invited a new organization, or  
8       not so new organization, another organization to  
9       be a member of this advisory group, but we have an  
10      empty chair here because the Climate Group, which  
11      is headquartered in London, which actually the  
12      Energy Commission and a lot of other people, Ned  
13      Helm, here, participated in the, in the birthing  
14      and launching of this, of this activity, we have  
15      asked them now that they have taken a significant  
16      seat at the table on a worldwide scale, to be a  
17      member of the group.

18          And Nancy Skinner, who is their U.S.  
19      representative, who we all know from ICLEI for a  
20      long, long time, has been designated as their  
21      representative, and she only lives in Berkeley,  
22      but she was going to be here, maybe she's caught  
23      out there in traffic, or maybe, as Wendy pointed  
24      out, she got pulled over by all those highway  
25      patrolmen. I hope she can join us today. There

1       were plans to have her join us.

2               MR. HERTEL:  Imagine how fast those  
3       electric vehicles --

4               (Laughter.)

5               CHAIRPERSON BOYD:  Yeah, I, I remember  
6       those days.

7               Anyway, with that, I will now ask --  
8       we'll return to the agenda and ask Susan Brown to  
9       take over and provide us the staff presentation  
10      and talk a little bit more about meeting  
11      expectations, and then we'll move on through the  
12      subjects in the agenda.

13              MS. BROWN:  Thank you, Commissioner  
14      Boyd.  My name is Susan Brown, I'm a Senior Policy  
15      Analyst with the California Energy Commission, but  
16      before I start my brief presentation I think we  
17      might want to have the parties on the phone line  
18      identify themselves, and I do apologize for the 20  
19      minute delay in hooking you in to the conference  
20      lines.

21              So if I might do that, Commissioner  
22      Boyd, I -- people on the line, would you identify  
23      yourself please, for the record.

24              MS. SCOTT:  I'm Linda Scott, Redefining  
25      Progress.

1 MS. GRAY: Gina Gray, Western States  
2 Petroleum Association.

3 MR. SCHILLER: Steve Schiller, Schiller  
4 Consulting.

5 MR. OGONOWSKI: Matthew Ogonowski,  
6 Center for Clean Air Policy.

7 MR. SARADONDO: I'm Steve Saradondo, for  
8 NRG Energy and West Coast Power.

9 MR. MONACHEK: Dave Monachek, with the  
10 California Electric Transportation Coalition.

11 MS. BROWN: Sounds like that's it.

12 CHAIRPERSON BOYD: Well, maybe Susan,  
13 now you have to ask everybody in the audience to  
14 identify themselves --

15 MS. BROWN: I, I can do that, and I'll  
16 start --

17 CHAIRPERSON BOYD: -- to make it fair,  
18 but --

19 MS. BROWN: I'll start way in the back  
20 of the room with the gentleman against the wall  
21 there. Would you please identify yourself and --

22 CHAIRPERSON BOYD: And shout it out,  
23 please.

24 MS. BROWN: -- shout it out. The court  
25 reporter will have difficulty, probably, hearing

1 your name. Or --

2 MR. SMITH: I'm Don Smith, from the  
3 Office of Ratepayer Advocates.

4 MS. BROWN: Don Smith, Office of  
5 Ratepayer Advocates.

6 MR. WOOLEY: I'm David Wooley, with the  
7 Energy Foundation.

8 MS. BROWN: David Wooley, with the  
9 Energy Foundation.

10 MR. OLSON: Jim Olson, with the  
11 California Energy Commission.

12 MS. BROWN: Jim Olson, with the  
13 California Energy Commission. This is for the  
14 court reporter.

15 MR. SIMONS: George Simons, with the  
16 California Energy Commission.

17 MS. BROWN: George Simons, with the  
18 California Energy Commission.

19 Daigo? I didn't get your name very  
20 well, with Semptra.

21 MR. KVALE: Lars Kvale, with Resource  
22 Solutions.

23 MS. BROWN: Lars Kvale, with Resource  
24 Solutions.

25 MR. duVAIR: Pierre duVair, with the



1 California Energy Commission.

2 MS. BROWN: Pierre duVair, with the  
3 California Energy Commission.

4 MR. SAN MARTIN: Greg San Martin, PG&E.

5 MS. BROWN: Greg San Martin, PG&E.

6 MR. SHULOCK: Chuck Shulock, California  
7 Air Resources Board.

8 MS. BROWN: Chuck Shulock, California  
9 Air Resources Board.

10 MR. FRANCO: Guido Franco, California  
11 Energy Commission.

12 MS. BROWN: Guido Franco, California  
13 Energy Commission.

14 MR. MARSH: Michael Marsh, Western  
15 United Dairymen and Western United Resource  
16 Development.

17 MS. BROWN: Michael Marsh, Western  
18 United Dairymen.

19 MR. JONES: Alan Jones, Nissan.

20 MS. BROWN: Al --

21 MR. JONES: Alan Jones, Nissan.

22 MS. BROWN: Alan Jones, Nissan.

23 MR. WAGGONER: Jim Waggoner, for AIAM.

24 MS. BROWN: Jim Waggoner, for AIAM.

25 MR. ADLER: Dan Adler, from the

1 California PUC.

2 MS. BROWN: Dan Adler, California Public  
3 Utilities Commission.

4 MS. MOTAMEDI: Lainie Motamedi,  
5 California Public Utilities Commission.

6 MS. BROWN: Lainie Motamedi, California  
7 Public Utilities Commission.

8 MR. GRANDY: Doug Grandy, Cal EPA and  
9 DGS.

10 MS. BROWN: Doug Grandy, Cal EPA and  
11 DGS.

12 MR. RUSSELL: Stu Russell, Russell  
13 Associates.

14 MS. BROWN: Stu Russell, Russell  
15 Associates.

16 MR. O'HARE: Andy O'Hare, Portland  
17 Cement Association.

18 MS. BROWN: Andy O'Hare, Portland Cement  
19 Association.

20 MR. BENNETT: Good morning. John  
21 Bennett, with the California Portland Cement  
22 Company.

23 MS. BROWN: John Bennett, California  
24 Portland Cement Company.

25 MR. KIETZ: Tom Kietz, California-Nevada

1 Cement Council.

2 MS. BROWN: Tom Kietz, California-Nevada

3 Cement Council.

4 MR. DeANGELIS: Mike DeAngelis, SMUD.

5 MS. BROWN: Mike DeAngelis, SMUD.

6 MR. BARTHOLOMEY: Obadiah Bartholomey,  
7 with SMUD.

8 MS. BROWN: Mr. Bartholomey, SMUD.

9 MR. BOYCE: Bill Boyce, with SMUD.

10 MS. BROWN: Bill Boyce, with SMUD.

11 MS. JACKSON: Pam Jackson, with SDG&E.

12 MS. BROWN: Pam Jackson, SDG&E.

13 MR. KENT: Ron Kent, Southern California  
14 Gas.

15 MS. BROWN: Ron -- last name?

16 MR. KENT: Kent.

17 MS. BROWN: Kent, Southern California

18 Gas.

19 MR. FULKS: My name is Tom Fulks, here  
20 representing the Robert Bosch Corporation.

21 MS. BROWN: Tom Fulks, Robert Bosch  
22 Corporation.

23 MR. BOCK: Corey Bock, California Air  
24 Resources Board.

25 MS. BROWN: Corey Bock, California Air

1 Resources Board.

2 MR. ROBERTS: Keith Roberts, City of  
3 Sacramento.

4 MS. BROWN: Keith Roberts, City of  
5 Sacramento.

6 MR. SMITH: Mike Smith, California  
7 Energy Commission.

8 MS. BROWN: Mike Smith, California  
9 Energy Commission.

10 MS. DAVIS: Stacey Davis, Center for  
11 Clean Air Policy.

12 MS. BROWN: Stacey Davis, Center for  
13 Clean Air Policy.

14 MR. DIERKESS: Greg Dierkess, Center for  
15 Clean Air Policy.

16 MS. BROWN: Greg Dierkess, Center for  
17 Clean Air Policy.

18 MR. WICKIZER: Doug Wickizer, California  
19 Department of Forestry and Fire Protection.

20 MS. BROWN: Doug Wickizer, California  
21 Department of Forestry and Fire Protection.

22 MS. PASSERO: Michelle Passero, Pacific  
23 Forest Trust.

24 MS. BROWN: Michelle Passero, Pacific  
25 Forest Trust.

1                   MR. FRANK: Last, but not least,  
2           Professor Frank from the University of California  
3           at Davis.

4                   MS. BROWN: Professor Andy Frank,  
5           University of California at Davis.

6                   Thank you.

7                   CHAIRPERSON BOYD: Good job.

8                   MS. BROWN: Did you get all that? Mr.  
9           Court Reporter, I think you did get most of those  
10          names. Thank you.

11                   My job is actually a very simple one,  
12          and that is to introduce today's agenda and our  
13          expectations for today's meeting. There are a  
14          number of handouts in the, on the table outside  
15          the room, so if you haven't picked those up I  
16          suggest you may want to do that.

17                   I also want to mention, for those of you  
18          calling in remotely, that all of the materials for  
19          today's meeting have been posted on the Energy  
20          Commission's climate change website and can be  
21          accessed at [www.climatechange.ca.gov](http://www.climatechange.ca.gov), under the  
22          California Climate Advisory Committee documents  
23          section for the April 6th meeting. So they are  
24          all available electronically.

25                   I just again want to thank all of you

1       for your -- for being here today to address what  
2       we think are some very important issues.

3               The agenda for today's meeting is  
4       largely a series of presentations by the Center  
5       for Clean Air Policy, who are providing staffing  
6       support to this effort. Following their  
7       individual presentations we will be hearing from  
8       the co-chairs of each our working subcommittees on  
9       industrial and ag, on transportation, and on the  
10      power sector, and asking for feedback from the  
11      full Advisory Committee following each  
12      subcommittee report on the materials put forward  
13      today.

14              We will also provide about three --  
15      around 3:00 o'clock this afternoon an opportunity  
16      for public comment, so if you wish to speak please  
17      see me during the lunch hour and I will compile a  
18      list of names. I've already received a couple of  
19      requests for -- from you for speaking today in  
20      response to the committee deliberations.

21              I just want to give a brief update on  
22      some of the activities underway in California to  
23      address climate change. First, as Commissioner  
24      Boyd mentioned, the California Energy Commission  
25      is undertaking its biennial energy report

1 proceeding, the 2005 Integrated Energy Policy  
2 Report. And to that end, climate change will be a  
3 major theme in that report.

4 We will be producing a series of staff  
5 papers, the first of which, titled "Global Climate  
6 Change", and soon to be amended to be called  
7 "Global Climate Change in California", is on -- is  
8 on the back table, and I encourage all of you to  
9 take a look at that report because I think it  
10 provides an important background and context for  
11 the work of this committee. I also want to  
12 mention that that report at this stage does not  
13 contain any recommendations, because we are,  
14 frankly, looking to all of you for policy input  
15 and for recommendations.

16 There will be two additional staff  
17 technical papers produced and released in mid-  
18 June. The first will be the update of the  
19 greenhouse gas emissions inventory that we are  
20 required by law to maintain, and the second will  
21 be a summary of the preliminary findings of a  
22 series of scientific research projects that are  
23 being sponsored by the Public Interest Energy  
24 Research Program of the Energy Commission. So as  
25 we get scientific papers and reports from our

1 consultants throughout the university system in  
2 California, we will be sending them out to this  
3 committee for review and comment. And Guido  
4 Franco, who is here today, is the project manager  
5 for many of these reports and, and inputs.

6 I also want to especially recognize the  
7 efforts of the California Public Utilities  
8 Commission, who has two or three separate  
9 activities under way relating to climate change,  
10 and I wanted to highlight that on February 23rd,  
11 the CPUC, under the leadership of President Peavy,  
12 held a very widely publicized en banc meeting, and  
13 to my knowledge this is the first of its kind, in  
14 which we sat together, the Energy Commission, the  
15 PUC, the State Controller, and Cal EPA, in one  
16 forum to address this important issue. And  
17 following my presentation I'm going to be calling  
18 on Dan Adler of the CPUC staff to give us an  
19 update on some of the other proceedings, more  
20 specifically the utility procurement proceeding.

21 Other states are now at a point where  
22 they are considering adoption of California's  
23 landmark motor vehicle standards, which limit  
24 greenhouse gas emissions for motor vehicles, and  
25 that proceeding, to my knowledge, is in the final



1 stage of rulemaking. And again, following my  
2 presentation, I'm going to ask Chuck Shulock of  
3 the Air Resources Board staff to step forward and  
4 give us an update on the Pavley Regulations.

5 And then lastly, we have initiated the  
6 second of a joint effort with the Public Utilities  
7 Commission and the California Independent System  
8 Operator called the Energy Action Plan, and that  
9 proceeding is, is now underway and we expect  
10 climate change to have a prominent place in that  
11 proceeding, as well.

12 So I thought it was important to  
13 highlight some of the activities of state  
14 government to address climate change.

15 I want to also highlight the fact that  
16 the West Coast Governor's Global Warming  
17 Initiative is still in place and was announced  
18 last November by the governors of California,  
19 Oregon, and Washington. The group is planning to  
20 reconvene in May of this year, and we expect to  
21 form a number of task forces with our mutual  
22 staffs to address some of the major  
23 recommendations in the report that was issued in  
24 November by the three staffs.

25 There were actually 35 separate

1 recommendations, some dealing with issues  
2 surrounding state re-procurement efficiency  
3 standards, truck idling, airport issues, ports.  
4 There were a number of papers that were actually  
5 generated and put forward through this group last  
6 fall, and the key recommendations are on the next  
7 slide,.

8 First, to coordinate with stakeholder  
9 processes like these, like this group. The states  
10 of Oregon and Washington have actually completed  
11 their stakeholder processes and both have climate  
12 action plans in place. And their legislatures are  
13 taking those action plans very seriously.

14 We also have said, in our joint  
15 recommendations, that we would work together to  
16 adopt comprehensive state and regional climate  
17 change goals, and that effort is still under way.  
18 Common standards for motor vehicles was an  
19 important theme, and as Chuck Shulock can attest,  
20 there are several other states across the country  
21 seriously considering adoption of the California  
22 Pavley Regulations, and there's interest in the  
23 Province of Canada and in other parts of the world  
24 in these landmark regulations.

25 We've also agreed, and this is, I think,

1       especially relevant to this group, to work  
2       together, the three states, to develop a regional  
3       carbon market. And certainly the discussions that  
4       we plan to have this afternoon no cap on load and  
5       cap on trade and some of the efforts underway at  
6       the Public Utilities Commission are relevant to  
7       this discussion that we'll be having with our  
8       colleagues in Oregon and Washington.

9               And lastly, we've all agreed, as a  
10       policy priority, to expand the markets for  
11       alternative fuels, renewables, and efficiency.

12              I want to briefly update you on the work  
13       of the subcommittees, and we'll be hearing from  
14       each of them today. The subcommittees have been  
15       meeting by conference call with the Center for  
16       Clean Air Policy. We've had a number of calls  
17       since our last meeting in January on topics  
18       ranging from methane recovery to transportation,  
19       to now, most recently, cap and trade design  
20       issues. We also have asked for feedback on some  
21       power modeling that is underway.

22              Also, we'll be talking about that this  
23       afternoon, and we hope to get feedback from the  
24       committee not only on the -- not only on the  
25       modeling assumptions, but also some of the

1 scenarios, the policy scenarios we'd like to run.  
2 And I'll ask Stacey Davis to comment on that this  
3 afternoon in her presentation.

4 The Committee on Cross-cutting Issues  
5 has really not had a lot to do yet, but we expect  
6 to call on them between now and the next July  
7 meeting to really grapple with some of the more  
8 complex issues surrounding cap and trade, cap on  
9 load, public participation, and market, the need  
10 for market incentives to, to provide and promote  
11 low carbon fuels.

12 And lastly, we are planning another set  
13 of meetings in July, and I put these dates out for  
14 your attention, to review interim work products  
15 which we'll be providing you in the weeks ahead.

16 So lastly, our agenda for today. We'll  
17 first be talking about industrial and ag issues,  
18 and in a moment I'm going to call on Ned Helme of  
19 the Center for Clean Air Policy. Matt Ogonowski  
20 is also available. He's one of the lead analysts  
21 on the methane work. And I don't know if David  
22 Wagner is available because his wife just had a  
23 baby, and so we have to excuse his presence from  
24 today's meeting. But Stacey, I think you're going  
25 to cover for, for him, or -- okay. And we'll be

1       hearing from the transportation and power sector  
2       committees, as well.

3               So here's my last slide. I think we'll  
4       probably defer discussion of next steps until the  
5       close of today's meetings, but again, I, I want to  
6       personally thank all of you for being here today  
7       and for the input that we've received since our  
8       last meeting.

9               Are there any questions on what I've  
10      said in my brief presentation?

11              If not, I'd like to call Chuck Shulock  
12      to come up and briefly give us an update on the  
13      status of the Pavley Regulations.

14              MR. SHULOCK: Thank you very much. I'm  
15      fresh back from four days at Pt. Reyes and it was  
16      wonderful, and there's nothing like that to sort  
17      of renew your enthusiasm for protecting our  
18      natural heritage. And so, looks like a big --

19              CHAIRPERSON BOYD: Don't rub it in,  
20      Chuck.

21              MR. SHULOCK: This looks like a --

22              (Laughter.)

23              MR. SHULOCK: This is a lot of people in  
24      one space here, for me, so I'll -- I'll have to --

25              (Laughter.)

1 CHAIRPERSON BOYD: Some of us got off  
2 airplanes last night from --

3 MR. SHULOCK: Yeah, sorry.

4 CHAIRPERSON BOYD: -- so don't push your  
5 luck.

6 MR. SHULOCK: It was, it was awesome.  
7 It was just --

8 (Laughter.)

9 MR. SHULOCK: It was just great.

10 So yes, I'll go quickly over our status  
11 on a couple of things. Looking backwards first,  
12 our board in September of last year approved  
13 regulations to control greenhouse gases and  
14 directed staff -- that's not the last word on the  
15 subject, that's not the last step in the process  
16 -- they directed staff to take the necessary steps  
17 towards final adoption. That's what's going on  
18 right now, and I'll, I'll get a little more  
19 specific in a minute.

20 One other thing that's worthy of note is  
21 that this bill, AB 1493, had in it an opportunity  
22 for legislative review. We did not need  
23 legislative approval. The, the legislature did  
24 not need to bless our regulations, but the way it  
25 was set up, the legislature was given an

1 opportunity to look at the regulations and  
2 intervene if they had a problem. Specifically, we  
3 needed to send a report to the legislature on  
4 January 1 saying what we had done, and then the  
5 regulations don't take effect until January 1 of  
6 2006. So there's a one-year period here where the  
7 legislature has an opportunity to review.

8 And on February 7th of this year the  
9 Assembly Transportation Committee held a hearing.  
10 The purpose of the hearing was to look at the  
11 regulations that we, that our board had approved,  
12 and determine whether they were consistent with  
13 legislative intent. So there was testimony and  
14 discussion at that hearing. The committee did not  
15 take an action, and as I said, no action was  
16 required. The only action that's really relevant  
17 here would be a negative one saying that they  
18 wanted, wanted us to do something different.

19 So the committee did not take an action,  
20 but by holding that hearing they did fulfill the  
21 statutory requirement that there be legislative  
22 review of the regulation.

23 Now, I can't say with certainty that  
24 there won't be other legislative activity.  
25 Somebody could introduce a bill, there could be

1 other things that could happen. But at this  
2 point, that's not anticipated, certainly, and, and  
3 that requirement has been adopted.

4 So moving forward now, there's, there's  
5 really activity on two tracks. One is  
6 administrative, and then the other is legal. On  
7 the administrative side, what is needed now, staff  
8 needs to respond to all of the comments that were  
9 submitted during our rulemaking, and we had many,  
10 many comments, including a very large batch from,  
11 from the automakers and their consultants. And so  
12 we're going through all of those comments and  
13 preparing responses.

14 The final package is something that's  
15 called the final statement of reasons, which lists  
16 all the comments received, gives our response. If  
17 we agree, we say so. If we don't agree, we say  
18 why. And we're pulling that package together.  
19 The deadline for submittal of this final statement  
20 of reasons is one year from the date of our  
21 initial staff report, which was August 6th of  
22 2004. So this package that we're pulling together  
23 with the response to comments must be completed no  
24 later than August 6th of 2005.

25 We don't anticipate that it will go that



1 long. We don't think we're going to be down to  
2 the last minute on this one. I, I don't want to  
3 give you a more specific date than that. But, but  
4 we're well underway in terms of reviewing and  
5 responding to these comments.

6 On the legal side, there have been two  
7 lawsuits filed, one in federal court and one in  
8 state court. I'll, I'll just mention them,  
9 really. Because we're in litigation I, I'm not  
10 free to, to really say much about them, but the  
11 federal court case primarily revolves around  
12 preemption. The argument that our regulations,  
13 which we say are controlling greenhouse gas --  
14 greenhouse gas emissions, the opposing argument is  
15 that these are in reality fuel economy regulations  
16 and therefore preempted under federal law. So  
17 there are other arguments that are made in that  
18 federal lawsuit, but that's, that's really the  
19 heart of it. So it has to do with preemption.

20 There's a second case which has been  
21 filed in state court, and that's primarily  
22 administrative. We, we have something called the  
23 Administrative Procedures Act that governs  
24 rulemaking in California, and the allegations in  
25 that lawsuit are that we failed to comply with

1 certain provisions of the Administrative  
2 Procedures Act, and that therefore our rulemaking  
3 was not lawful.

4 Obviously, from our standpoint we, we  
5 disagree on all of these counts. But these things  
6 are churning their way through. I, I don't have  
7 much to say, and this is ignorance rather than  
8 being silenced by our attorneys. I don't, I don't  
9 have much to say about the, the deadlines and  
10 exactly what happens next in, in what order.  
11 These things are kind of churning their way  
12 through and we expect it'll be a while before  
13 there's any kind of definitive action.

14 And then finally, just real briefly.  
15 Susan mentioned other states and their activity.  
16 There's a, there's a traditional group of  
17 northeastern states that has adopted the  
18 California low emission vehicle standards, New  
19 York, Massachusetts primarily, in terms of  
20 numbers, and then there's, there's several other  
21 states. Most recently, Connecticut and New Jersey  
22 have climbed aboard. And each state has its own  
23 particular way to do this. Some can just do it,  
24 others need legislative activity, so it's not a --  
25 they each have their own sort of flavor of exactly

1       what's happening.

2               But, but in general, that large group of  
3       northeastern states have either publicly committed  
4       or are seriously considering adoption of these  
5       greenhouse gas reduction standards. And then the  
6       state of Washington, which has not traditionally  
7       been part of this, this -- a bill to adopt the  
8       California low emission vehicle program passed  
9       their assembly, and last I heard, which was last  
10      week so I may be a little bit out of date, it was  
11      before their senate, and I don't know if any  
12      action was taken there. Okay, so I'm getting a no  
13      from Jason over here.

14              So that's, in a nutshell, that's where  
15      things stand. And I appreciate the opportunity to  
16      be here, and if there's any questions or --

17              MR. HERTEL: Chuck, I, I know you said  
18      that you're ignorant about this, but I just wanted  
19      to ask, the next steps in the litigation, I assume  
20      there is some sort of briefing or motion filing at  
21      this stage of the game, and can you indicate with  
22      any degree of estimate when significant things  
23      will begin to happen in those lawsuits?

24              MR. SHULOCK: I think the short answer  
25      is no. I really, I know they, they filed a

1 complaint. We filed a response to their initial  
2 complaint. I think they're going to amend the  
3 complaint. And, and I, I was kicking myself this  
4 morning that I knew questions like this were going  
5 to come up, and I hadn't prepared myself  
6 adequately, so I really can't give you a better  
7 answer.

8 MR. HERTEL: You could've used your cell  
9 phone from Pt. Reyes.

10 MR. SHULOCK: I tried, but there wasn't  
11 a signal.

12 (Laughter.)

13 MS. BROWN: Thank you.

14 I would like to call on Dan Adler, from  
15 the CPUC.

16 MR. ADLER: Thank you, Susan.

17 Good morning. Let me say that I think  
18 I'm at the other end of the spectrum from Chuck.  
19 I'm feeling the crush of my San Francisco  
20 lifestyle, and so it's nice to come up to  
21 Sacramento and get back to nature a little bit.

22 (Laughter.)

23 MR. ADLER: I'll give you a brief update  
24 on what's happening at the CPUC in our long-term  
25 planning and procurement process. A little bit of

1        what we're doing, and I think of probably equal  
2        importance is what we're not doing. There's been  
3        some concern expressed in a number of quarters  
4        about some strange policy ideas coming out of the  
5        CPUC at this moment, so I'd like to try and put  
6        some of those to rest.

7                A little bit of background first. The  
8        CPUC has an ongoing resource planning and  
9        procurement process. In that process, last  
10       December the Commission embraced long-term plans  
11       for its IOUs, and also set out some specific  
12       climate change related policies, one of which was  
13       a carbon risk adder. It's an analytic tool that's  
14       to be employed in the evaluation of resource  
15       options. And another policy approach was a  
16       general statement of direction from the  
17       Commission, telling staff -- including myself --  
18       to explore possibilities for some sort of  
19       greenhouse gas cap that could be implemented in  
20       the near term, with the target of early 2007 being  
21       ruled out.

22               The vehicle for that was a three-day  
23       workshop that we held in early March, and there  
24       was a concept paper that had been prepared by our  
25       Administrative Law Judge Division, that had been

1 around for over a year at that point, that was  
2 called the, the Sky Trust proposal. You may have  
3 heard it referred to in those terms.  
4 Conceptually, a quite elegant piece of work, but  
5 in between its conceptual elegance and the many  
6 implementation difficulties, the latter clearly  
7 won out. I think before we held the workshop it  
8 was clear that Sky Trust was, was not a going  
9 forward proposition.

10 But nonetheless, it served to stimulate  
11 a lot of good discussion. And in the course of  
12 the workshop, which really had two purposes, to  
13 try and design a comprehensive set of procurement  
14 incentives for the utilities, to encourage our  
15 preferred resources efficiency, renewable energy,  
16 et cetera. In addition to that, to establish a, a  
17 greenhouse gas policy for the Commission.

18 So through the course of the three days,  
19 as I said, the Sky Trust proposal was whittled  
20 away. And where we wound up, and right now I'll  
21 give you a sense of the status. We have a  
22 workshop report that is available and out for  
23 public comment. I have a few copies that I'd be  
24 happy to share with any interested parties.

25 Where we wound up is generally with the

1       sense that the Commission needs to do a better job  
2       of understanding the current greenhouse gas  
3       profiles of its utilities. We engaged quite, in  
4       quite a degree of detail the notion of a load-  
5       based cap versus a generation-based cap. You'll  
6       see in the workshop report that there is a, a  
7       staff preference for the load-based cap approach.  
8       That, that is only the staff preference at this  
9       point.

10               But the, the main thrust in the near  
11       term is getting a better sense of what the  
12       utilities are responsible for, if I can use that  
13       phrase, in a load-based context, including power  
14       imports. And, of primary importance, where we're  
15       going given our adopted goals for energy  
16       efficiency, renewable energy, incentives for  
17       natural gas efficiency, and, and re-powering of,  
18       of old natural gas fleets.

19               Given that set of goals, what does that  
20       mean from a greenhouse gas perspective. And we  
21       don't, frankly, have a, have a good sense of that.  
22       I think you could make the case that we have a  
23       carbon policy, a greenhouse gas policy, but we  
24       don't fully understand its implications. So as a,  
25       as a near term sort of no regrets approach, the

1 workshop report and the staff recommendation sets  
2 out a course to understand exactly what the  
3 existing commitments are going to yield us. Can  
4 we call that a greenhouse gas emissions  
5 trajectory? Could it become the basis for a cap?

6 And then, when we incorporate some of  
7 the work that this group is doing, and others are  
8 doing, supply for preferred resources so that we  
9 have a sense of what we can actually achieve in  
10 further reductions. That builds in quite  
11 effectively to a hard cap for our utilities.

12 And then, to my mind, it becomes quite  
13 compatible with what other efforts are happening  
14 here at the state level, and more broadly  
15 regionally, and ultimately nationally.

16 That, effectively, is, is the state of  
17 play now. The Sky Trust proposal that was much  
18 more rigid, involving three utilities capping and  
19 trading and numerous forms of market efficiencies  
20 is, is off the table. I would like to make that  
21 clear.

22 And where we are now is hoping to engage  
23 with this group and engage with the other state  
24 agencies that are active in this area, and make  
25 sure that we get a, a lot of good feedback and



1 collaboration. I'm named in the workshop ruling  
2 as the staff person that's responsible for that.  
3 That's unusual, to put an individual staff member  
4 out in public, subject to the slings and arrows.  
5 But that's my role, and I think it's, it's a good  
6 idea. So I will be actively seeking collaboration  
7 from the folks in this room, and I look forward to  
8 your feedback on that over the next several  
9 months.

10 I'll take some questions, if anyone has  
11 any.

12 MR. CAVANAGH: Well, Dan, just to make  
13 sure I'm clear on this. You've obviously got a  
14 policy establishing a dollar value for carbon, but  
15 research procurement that takes account a future  
16 financial risks of carbon dioxide regulation.  
17 Are, are you about to get that to a higher level  
18 of definition? Am I right about that?

19 MR. ADLER: Yes, that's, that's true.  
20 Ralph mentions -- the adoption of this greenhouse  
21 gas adder was somewhat vague, for a number of  
22 reasons. One, we wanted the utilities to become  
23 more comfortable with the notion of a risk adder,  
24 a dollars per ton sort of encompassing the  
25 likelihood and the likely impacts of future carbon

1 regulations. That, that was set as a range, and  
2 we set out a process to firm that up in our  
3 avoided cost proceedings.

4 We had hoped that that would come to a  
5 conclusion right around now. A number of other  
6 more immediate policy concerns, pricing of  
7 qualifying facility resources, intervened in that,  
8 that same docket, and as happens at the PUC, we  
9 try and load too many issues in one forum and it  
10 tends to bog down. But we do expect that that  
11 will be taken up later this year. The, the range  
12 of the dollar value for a ton of carbon will be,  
13 will be more fixed.

14 I'm, I'm hopeful that that will happen  
15 in sort of the, the third quarter, but I can't be  
16 more certain than that, given the state of plan  
17 I'm proceeding now.

18 MR. HELM: Dan, at the en banc  
19 proceeding, at the very end there was a somewhat  
20 abrupt close to the session, and President Peavy  
21 indicated that the idea of a collaborative report  
22 between the utilities would be something that the  
23 Commission would, in fact, ask us to do. What's  
24 the status of that issue?

25 MR. ADLER: The en banc, in its design,

1       was meant to get at the business practices of all  
2       the regulated utilities, not the energy supply  
3       aspects of, of greenhouse gas. At the end of the  
4       en banc those issues started to merge together.  
5       And I think it, in the current thinking at the  
6       Commission, the priority, from a staffing and  
7       timing perspective, is on the energy supply  
8       issues, the, the energy utilities and the, the  
9       decisions about load-based, gen-based cap, et  
10      cetera.

11               That's not to say that the business  
12      practice collaborative report process is, is  
13      necessarily dead in the water at this moment, but  
14      I, I do think that the highest priority now for  
15      the Commission is to make sure that we engage the  
16      energy service portion of, of greenhouse gas  
17      policy. So there, there's not a, a deadline or a  
18      fixed schedule for the, the business practices  
19      report at this time.

20               Thank you.

21               CHAIRPERSON BOYD: Thanks, Dan.

22               MS. BROWN: Thank you, Dan.

23               At this point I'd like to call on Ned  
24      Helme.

25               MR. HELME: Where's our technical -- is

1       our technical whiz in the room?

2               MS. BROWN:  That's not the right one?

3               MR. HELME:  No.

4               MS. BROWN:  Okay.

5               MR. HELME:  I don't think.  Let's see.

6       Maybe.  I don't know if this is the new one, or  
7       that --

8               (Inaudible asides.)

9               MR. HELME:  Okay.  I'm going to -- I'll  
10       ad lib here.  The new slides seem to get picked  
11       up, so I'll just take it through it.  There's a  
12       couple of over-arching slides I want to talk  
13       about, and so I'll do that.

14               What I wanted to do first was give you a  
15       sense of where we are in terms of the overall  
16       analysis for the committee, so, there's been some  
17       questions about which pieces are we doing and  
18       when, and that sort of thing.  So I wanted to give  
19       you a little sense of the timing of the different  
20       pieces of the analysis and sort of where we are on  
21       the major pieces.

22               So if you look at this slide, this one  
23       is you've seen before.  This is the overall  
24       inventory, 1999, and you remember Susan's slide  
25       showed this a little more aggregated.  But it

1 gives you a picture of where we were in 1999 in  
2 terms of the California inventory for greenhouse  
3 gases. As you can see, transportation is about  
4 half, industrial is about 20 percent. You know,  
5 you've got to move some, some of the things in the  
6 industrial category. Utilities are about 20  
7 percent, as well. And then a series of other  
8 sectors.

9           And what we've been doing in terms of  
10 our analysis, we've been trying to set up for you  
11 all each sector, trying to do an analysis that  
12 gives you a sense of what the potential reductions  
13 are in that sector, what the costs are, sort of  
14 building a supply curve for each sector, and then  
15 spending some time on what the strategies would be  
16 to implement the reductions in that sector.

17           And so for today's meeting, and the  
18 prior meeting, we'll have for you the cement  
19 numbers. They're pretty well complete, and we'll  
20 have some reaction from Andy O'Hare and the Cement  
21 Association. We've had a lot of conversations  
22 with him and his staff in terms of the numbers, so  
23 you'll get a good sense of that. And the reason  
24 for focusing on cement is really to give you sort  
25 of a sample of how the analysis works and what

1 we're trying to ask questions and what the options  
2 might be.

3           It's not, cement is small as a total.  
4 You can see up here up here it shows 5.6. When  
5 you take into account that's in the industrial  
6 it's something in the 10.4 million tons range as  
7 the baseline, so a small two and a half percent of  
8 the overall California inventory. So relatively  
9 small. But we're looking at it because it's been  
10 an industry that's been very aggressive, done a  
11 lot of good work internationally as well as in  
12 other states and other countries, and really has  
13 thought through what their baseline looks like and  
14 what their options are.

15           So it's a real nice sector to take a  
16 hard look at and say all right, here's, here's  
17 what's possible, here's what it costs, here's what  
18 it looks like. And what we're going to do is  
19 basically do that for you for each sector, you  
20 know. We're going to do the electric utility work  
21 with the model, that should be ready for our July  
22 meeting, and give you a sense of what's possible  
23 from that sector. Greg Dierkers is going to take  
24 you through the first round of work we've been  
25 doing on the transportation area today, to give

1       you a sense of what's possible in the  
2       transportation sector.

3               I commend to you the study that Susan  
4       sent out from ICF on non-CO2 gases. It's a really  
5       comprehensive piece of work, changes some of the  
6       numbers in this baseline. Very interesting  
7       landfills. It shows here at 13 million, and ICF  
8       works just -- the baseline is really 30 million.  
9       And I want to show you the 2020 numbers, you see  
10      that -- and again, grow significantly.

11             Their work really suggests that in the  
12      non-CO2 gases looking across the board, methane,  
13      we're going to talk about today the mitigation in  
14      terms of manure digests and soil. But they looked  
15      at it comprehensively, and they basically suggest  
16      that emissions in this entire sector will go up  
17      about a third by 2020, and that the range of  
18      options they identify in their study at \$20 a ton,  
19      or less, would basically stabilize that. In other  
20      words, you could offset that one-third growth.  
21      You probably couldn't get a net reduction, but you  
22      could probably offset that growth.

23             And the work I'm going to show you in  
24      cement, depending on what you assume about  
25      potential growth, we're sort of looking at the

1 same thing. The best we probably can hope for is  
2 stabilizing at current levels of emissions, not  
3 getting net reductions. So that's going to leave  
4 us with the goals, we think about what's the  
5 target, what are we trying to achieve, as, as an  
6 overall, as a committee. And, and the process  
7 here in California it's going to say we've got to  
8 look at transportation, what can be done there,  
9 and Greg'll show you.

10 And transportation, of course, is  
11 growing very fast, and we've looked at the  
12 petroleum reduction study, we've looked at a  
13 number of other studies that have been done. I  
14 think Dan Fong is about to complete some detailed  
15 work for the Commission, and it'll give us an even  
16 more complete picture on transportation. But  
17 again, the story is going to be it's going to be  
18 hard to stabilize emissions. We can cut the  
19 growth, which will be dramatic, but we'll still  
20 see some growth in the transportation sector.

21 So that's going to leave us with the  
22 question of how are we going to get emissions  
23 down, what are the options. We'll look at the  
24 utilities, and that we're going to talk about this  
25 afternoon. And then there'll be the natural gas



1 area that Dan alluded, Dan Adler alluded to in  
2 terms of the work that the CPUC is looking at.  
3 Maybe some possibilities there. And we'll look at  
4 petroleum refining, which we haven't looked at  
5 yet, and you can see in the industrial sector a  
6 pretty big number, 42.8. A big piece of that is  
7 petroleum, so we'll look at that as a possible  
8 opportunity.

9 But I think the bottom line here is what  
10 we want to present for you guys is a sense in each  
11 sector of what's possible at what price, and then  
12 in July and subsequent meetings, have the chance  
13 to sort of look at this and say all right, here's  
14 the menu, here's the different set of scenarios in  
15 terms of what kind of target, you might be able to  
16 have a sense of what kind of target we want to get  
17 to. And then what pieces of this puzzle do we  
18 need to take in order to get to different targets.

19 So that's, that's really the model of  
20 what we're trying to do in terms of staging this  
21 process for you guys. Basically, sort of give you  
22 a picture of each key sector, what's possible at  
23 what price, and then sort of what the aggregate  
24 is. We're building bottom up, what can we get  
25 from all these measures and how does that compare

1 to what we'd like to do overall. Do we want to  
2 stabilize the 1990, do we want to go below, what's  
3 our goal in terms of the statewide target. And  
4 then where are the best windows of opportunity.

5 So we'll know, today I'll show you  
6 cement numbers, what you can get for \$10 a ton.  
7 As I mentioned, the ICF work shows you what you  
8 can get for \$20 a ton. Greg'll give you a  
9 preliminary look at what's possible here in terms  
10 of transportation. But that's kind of the model  
11 we have in mind for the committee, to give you  
12 guys that sort of information, and then work your  
13 will in terms of what you'd recommend, which way  
14 to go.

15 So I think it's important to sort of  
16 think of this in a overall context. How are we  
17 putting this whole puzzle together. It's not  
18 simply oh, let's do Pavley, or let's do, you know,  
19 cap and trade. It's really about let's look at  
20 all the different pieces and how they add up, and  
21 what's an acceptable price, and so forth.

22 In addition, we'll have some help from  
23 PIER and, and Lawrence Berkeley, to look at what  
24 the macro effects of whatever package you all pick  
25 will be. So when we've, in, in July, if we're

1       successful and sort of agree on some of these  
2       different pieces, we can plug them in to this  
3       macro model and see what that means to the  
4       California economy, what's that mean for overall  
5       economic impact on state GDP and so on.

6               So we want to be able to understand not  
7       only sort of what are the costs per tone, but also  
8       what's this mean in a macro sense for the state of  
9       California, what's this mean for growth, and that  
10      sort of thing.

11             So that's kind of the, the big picture.  
12      I had some other slides to explain that, but I've  
13      just done it sort of verbally. And here's the  
14      2020 picture, and you can see emissions going up  
15      significantly from 480 to 546, pretty fast growth  
16      by 2020. You can see transportation's still the  
17      biggest piece of the pie, and the utilities also  
18      very big. I mentioned landfills it turns out will  
19      be double what's in here. In 21 it'll really be  
20      44. So looks like, from the ICF work, that  
21      landfills are a real opportunity, and something  
22      that we haven't spent as much time on, but I think  
23      you'll see it. ICF hopefully will be able to  
24      present between now and our July meeting to the  
25      sub group, you can get a sense of what's there,

1 but some very interesting and comprehensive work.

2 So that's kind of the, the big picture  
3 of where we're trying to take it, and, and a sense  
4 of the pieces. So for today, you'll see cement,  
5 you'll see you'll see methane digesters. We still  
6 need some feedback from Cynthia and her team, so  
7 we'll be doing that subsequent. So we don't  
8 consider this a finished product by any means.  
9 It's the first cut. It's been updated, what  
10 Stacey will present, what Matt Ogonowski put  
11 together, which brings into account what ICF did,  
12 as well, so we're trying to keep that together.

13 And then, as I mentioned, Greg'll do  
14 transportation and Stacey will talk about the  
15 policies involved in doing a cap on load serving  
16 entities.

17 The modeling, I should say, in terms of  
18 the modeling for utilities, we're -- just got the  
19 funding finalized from the Energy Foundation to  
20 rebuild this NEMS model that we'll use, to allow  
21 us to really look at this load serving entities  
22 option. We will, Stacey will present some of the  
23 basic cases, some of the first runs, but we are  
24 hopeful that all that will be ready in time for  
25 July and that you'll be able to give us some

1 guidance on what policy options, what kind of  
2 levels of reduction, et cetera, you'd like to see  
3 modeled in the effort, and certainly build on what  
4 Dan was saying. We'll be building in the RPS, the  
5 energy efficiency kinds of things, as early runs,  
6 to see what that gets you before you go to any  
7 kind of cap sort of options. So that, that's kind  
8 of where we are.

9 Let me just stop there and, before I go  
10 into cement, and see if there's any questions on  
11 the big picture. I wanted to sort of paint the  
12 entire picture for you so -- I don't have tech  
13 slides to show you, but it gives you the basic  
14 idea of where we're trying to go with this.

15 Michael.

16 MR. HERTEL: Ned, I, I think the only  
17 thing that was missing from the -- it was hard to  
18 take notes going that fast. That was good.

19 MR. HELME: I'm sorry about that. It  
20 would've been better with the slides, but --

21 MR. HERTEL: The only thing that I would  
22 like to know is not just what, what the goal  
23 consideration would be, like going back to 1990,  
24 going below 1990, something else, but also the  
25 rate at which one tries to achieve that goal.

1 MR. HELME: Uh-huh.

2 MR. HERTEL: I think that's a critical  
3 factor, especially given the state of  
4 international science about climate change, the  
5 big debate still up in the air, I think -- no pun  
6 intended -- is about how long does the globe have  
7 to, to return to 1990 levels. So I think that  
8 would be another aspect, the rate at which the  
9 state chooses to take whatever action it decides  
10 to take. That influences price, obviously.

11 MR. HELME: Absolutely. Absolutely.  
12 You'll see, when I show you these cement slides,  
13 you'll get a sense of the trajectory. But on an  
14 overall basis, you know, most of the experts are  
15 arguing if you want to get to stabilization of CO2  
16 concentrations in the atmosphere at the 450 to 550  
17 range, you're really looking at global reductions  
18 of something like 60 percent by 2050. The  
19 European Union just two weeks ago, the Commission,  
20 the key counselors, the ministers, agreed to a  
21 target of minus 20 below 1990 by 2020. And that's  
22 going to be their negotiating position in the  
23 negotiations going forward for post 2012.

24 The modelers argue, there's a lot of  
25 debate about how fast, you know, what do you have

1 to do to early versus what can you do late.  
2 Obviously, capital stock turnover and new  
3 technology are critical. We can't get there, no  
4 matter what, without capital side coming over and  
5 new technologies. The question is what do you  
6 need to do early and do you foreclose options, you  
7 know, like the 450 ppm goal, if you don't do a  
8 fair amount early. I think that's why the  
9 Europeans came to this decision that they had to  
10 say minus 20, which is a daunting target.

11 And you can see from my description  
12 here, we're, they're looking at this and saying  
13 it's, it's going to be real work to get to 1990 in  
14 California. And, of course, California's somewhat  
15 unique, because you're so heavily dependent on  
16 transportation and don't have a lot of coal, the  
17 out of state coal. So there aren't the easy  
18 targets that an Ohio might have.

19 MR. HERTEL: I guess the only comment  
20 I'll make to that, Ned, is that not only is it  
21 important to decide what to do early, but what you  
22 decide to do early may affect what decisions you  
23 can make later on. If you commit to technology in  
24 the near term, that sounds like just transition,  
25 but it gets locked in for longer periods of time

1       than you intend given capital stock lifetimes.  
2       That can affect dramatically your ability to reach  
3       the long-term goal.

4               MR. HELME:  Absolutely.  Question in the  
5       back?

6               MR. SOLT:  Your 2020 transportation  
7       sector take --

8               MR. HELME:  Can you come up to the  
9       microphone?

10              MR. SOLT:  Does your transportation  
11       sector number four take into account the  
12       California -- impacts?

13              MR. HELME:  I do not think so.  I think  
14       what Greg is going to present will include the  
15       Pavley bill.  But this, this is a CEC slide from a  
16       while back.  I do not think it includes Pavley, so  
17       it is a faster growth rate than we would expect  
18       with the Pavley bill being implemented.  But  
19       Greg'll show you that when we get to  
20       transportation.

21              Okay.  Shall I go on?  I'll go on to the  
22       cement piece.  I'll try to move through this a  
23       little quickly, because we're an little behind  
24       schedule, I can see.

25              CHAIRPERSON BOYD:  And we don't want



1 Mike being able to keep notes too well, so go  
2 real --

3 (Laughter.)

4 MR. HELME: This time I'll be following  
5 the slides. I just had two slides that we  
6 didn't --

7 MR. HERTEL: We need to move faster.

8 MR. HELME: I'll send you the two  
9 slides. It's just, I couldn't -- they were a  
10 version that weren't mounted here in time to --  
11 okay.

12 First thing here is basically the  
13 elements of the analysis we did. And David Waggoner  
14 took you through this at our last meeting, so I  
15 won't spend a lot of time here. Basically, we  
16 were trying to project growth rates and fuel use,  
17 and expected demand, and then looking at what the  
18 potential cumulative reductions were in terms of  
19 energy consumption, CO2 measures, and building an  
20 abatement cost curve. And you'll see, as I go  
21 through this, the key question is really what is  
22 the is the expected growth rate for cement.

23 In terms of the sources, we consulted a  
24 lot with Andy's group. We looked at historic data  
25 in terms of growth rates in California. The

1 cement industry has grown by about two and a half  
2 percent a year over the last decade. That's  
3 faster than other parts of the country. We  
4 decided on a two percent growth rate. We also ran  
5 some scenarios with a one percent growth rate, and  
6 as you'll see, it makes a lot of difference what  
7 you assume, and Andy may have some comments about  
8 what's an appropriate growth rate for the  
9 industry. Obviously, a growing state is going to  
10 build more buildings and, and build more roads,  
11 and so on, so there's going to be -- cement is an  
12 ever present part of that.

13 In terms of other baselines, we used  
14 data from California, from the CEC. A lot of the  
15 work here comes from a big study done by Lawrence  
16 Berkeley Laboratories for the PIER Program and,  
17 and the CEC. In terms of the bottom line, again,  
18 assuming this two percent growth, we see emissions  
19 growing from ten million tons in 2005 to 15  
20 million tons by 2025, so you can see a 50 percent  
21 growth over that time period, and you see the  
22 break by year, and I'll show you that with a slide  
23 when it comes up. And obviously, if you use the  
24 one percent then the growth rate is considerably  
25 less, 12 percent less.

1                   Cumulative annual reduction is about 47  
2   million tons, not a very meaningful figure.  
3   You'll, you'll see it better when we get to the  
4   slides. The key thing here, 70 percent of the  
5   reductions in the cement industry come from two  
6   things. One is blending more limestone, and Andy  
7   can explain this process better than I, and the  
8   other is the blended cement, which is using other  
9   materials in the, in the blend.

10                  Both of these measures face some  
11   challenges in terms of barriers. What's  
12   interesting in this sector is it's not so much a  
13   question of setting a cap, it's more a question of  
14   how do you change some of the barriers to having,  
15   having these measures possible. At the moment,  
16   Caltrans doesn't allow this type of cement, and  
17   you'd need to change the rules to allow that to  
18   happen.

19                  We also see about 3.6 million tons of  
20   reductions possible from using waste tires instead  
21   of coal or some other things. Big problem there  
22   is more about whether or not there's public  
23   acceptance. Well, Chuck can tell you from the ARB  
24   standpoint, tires are not, not as bad as coal from  
25   an air pollution standpoint, but the average

1 person probably thinks burning tires is the  
2 dirtiest thing you can do. So whether or not this  
3 is a winner, even though it might be  
4 scientifically a winner, is something that depends  
5 on the marketing of this kind of measure. So,  
6 important to recognize that.

7 Here's the curve using a seven percent  
8 discount rate. A little hard to read, but the,  
9 you've got in front of you, see the, the first  
10 chunk, as I mentioned, is the limestone process.  
11 The second big chunk with this long horizontal  
12 line in the middle, under \$5, is the blended  
13 cement, and then the last, up at the top here, the  
14 higher costs are CemStar and some other methods.

15 Here's the slide that really counts.  
16 This is, looking at the black line at the top is  
17 the baseline, business as usual. Assuming two  
18 percent, now. And so you can see we're going from  
19 10 to 15 by 2025, in terms of the tons, and you  
20 can see the first set of measures that the no  
21 cost, you know, no regrets kind of measures get  
22 you the, the first line below the black line. And  
23 then as we go further up the cost curve, \$5, \$10,  
24 we get a larger reduction. So you'll see a lot of  
25 this is for \$10 a ton.

1           If you're thinking about setting a cap,  
2       and I know the recorder will lose this, but I want  
3       to point it to you. I'll go up here. Here we are  
4       at 2010. If we want to do something in 2010, it's  
5       got to be -- and if I want to do just things that  
6       are cost effective today, no cost, I can set the  
7       cap at this .4. And if I was willing to go to \$5  
8       or \$10 a ton I could add the 9.5. Well, you might  
9       think about it.

10           The same way out here in 2020, you can  
11       see the numbers. And now I'll show you what  
12       happens if you assume a different growth rate.  
13       You assume a one percent growth rate versus the  
14       cap --

15           (Note: Unable to hear voice clearly.)

16           MR. HELME: And again, that's how we  
17       look at it. So again, this is not to say oh,  
18       here's a cement cap. This is to say here's how to  
19       think about this concept for any sector we're  
20       looking at. This is looking at the price, so if  
21       we say we're only going to do no regrets measures,  
22       then this is where we come down. If we're willing  
23       to do more, we then have to look at everything and  
24       say oh, we go to --

25           (Note: Unable to hear voice clearly.)

1                   MR. HELME:  -- to get this through a  
2       variety of measures, as I'll talk about.  But  
3       Stacey, to help you think about how does the  
4       supply curve inform us.  We want this same thing  
5       for every sector, so we can put them, at the end  
6       of the day in July, put all these out there next  
7       to each other.  You'll see them all, and then you  
8       say all right, now maybe this one's great.  It's  
9       cheap, but there's a real good reason why this'll  
10      never fly, so it's out of here.

11                  Or maybe Cynthia's bio-digesters, you  
12      know, we, we get done and say these NOx emission  
13      standards are so tough and we can't change that,  
14      it's going to be too expensive to put SCR on,  
15      forget it.  It may be wonderful, looks really  
16      cheap, but there's a reason this one can't be.

17                  So that's the kind of assessment we want  
18      you all to have a chance to make, sort of think  
19      about that.

20                  Michael.

21                  MR. HERTEL:  I, I take it your previous  
22      comments about the way you can do in the way of  
23      efficiency, conservation, to deal with the growth  
24      issue, obviously these curves tend to indicate  
25      that if you could do something about growth that

1 would probably be a very effective mechanism. So  
2 the assumptions about why it grows at the rate  
3 that it does and what can be done about that rate  
4 of growth will be critical.

5 MR. HELME: Yeah. This --

6 MR. HERTEL: I'm thinking of the RGGI  
7 Process, and the difficulty in -- let me put it  
8 differently -- the care and caution that that  
9 stakeholder process used to come up with their  
10 base reference case. I just want to underscore  
11 the importance of getting that as, as solid as we  
12 possibly can and not being overly rushed in that  
13 process, because that's a critical determinant of,  
14 of your policy choices in the end.

15 MR. HELME: Absolutely. That's  
16 absolutely right. I mean, it all hinges on what  
17 you assume is going to be the business as usual  
18 pattern for whatever sector you're looking at.  
19 That's, that's a critical piece.

20 Everybody with me? Okay. All right.

21 Now, the, the next step in this is to  
22 overlay policy options that you can use to get to  
23 those reductions, all right? Today in each case  
24 we're going to be talking to you about what's the  
25 possible reduction in the sector we're looking at.

1 Later on, we're really going to talk to you about,  
2 all right, how do we get there, what's it take to  
3 get there. I'll show you for cement some choices  
4 as, again, as, as a example, a sort of sample case  
5 study.

6 So up at the top here we've got  
7 technology mandates. You could mandate blended  
8 cement. Obviously, this goes to the barrier  
9 question of whether or not Caltrans allows the  
10 cement to be used. You can go to that sort of an  
11 approach. You could do something with cost-  
12 sharing and funds. You could create incentives,  
13 you could create tax credits, other things that  
14 would try to encourage this direction without  
15 mandating it.

16 You could go to negotiated agreements.  
17 I think Andy'll talk about some of the negotiated  
18 agreements they've done with other countries in  
19 other situations where the industry agrees to  
20 reach a certain level. It's not locked in with a  
21 cap, it's more of a, a process sort of agreement,  
22 but you can have compliance mechanisms. We know  
23 the Canadians just announced yesterday their --  
24 I'll say the equivalent of Pavley, it's not quite  
25 the equivalent -- but it's a voluntary agreement



1 signed by all the players to achieve reductions  
2 comparable to Pavley, five million tons by 2010  
3 from cars. So an example of a negotiated  
4 agreement. Many of these in Europe and other  
5 places, in terms of how to do that.

6 You can do this with benchmarking. A  
7 certain level of carbon per ton of, clean cured  
8 carbon per ton of cement produced. That doesn't  
9 give you an absolute cap, but it gives you a  
10 direction you want so it doesn't stop your growth.  
11 It just says you've got to get to this level of  
12 efficiency or carbon intensity, and, and we won't,  
13 we won't cap the growth because we don't know  
14 what's going to happen to the growth, so we'll do  
15 it on an intensity basis rather than on a hard cap  
16 basis.

17 And then finally, obviously the cap and  
18 trade is a way to go. You can do this a cap just  
19 within the sector, or you can say all right, we'll  
20 set this little cap for cement and we'll let them  
21 trade with the utilities and let them trade, trade  
22 with refineries and with bio-digesters, let's say,  
23 for example, or sinks. So again, it depends on  
24 how you want to design the different pieces  
25 fitting together.

1                   Okay. Two take-home messages on cement,  
2           just, just for key. Whatever we want to do in  
3           cement, we need to do something about these  
4           barriers. I mean, you can't get there without  
5           changing what Caltrans' position is currently on  
6           the use of blended cement. And clearly, we've got  
7           some issues here about the public perception. So  
8           when we think about measures in this process we  
9           also need to think about it's not just to do it,  
10          you've got to be sure you fix the things that are  
11          in the way to get this done.

12                  Okay. Conclusions. You've got this  
13          already. Various cost-effective options are here.  
14          We're very sensitive to what that growth rate is.  
15          Those two blending ideas, different process ideas,  
16          are probably the most interesting. A variety of  
17          policy approaches could take you there. And  
18          clearly, Michael's point, the growth rate  
19          assumptions are central to what you do here. You,  
20          you're wrong about the growth rate assumptions,  
21          you've got a problem where you set that cap if  
22          you're going to go cap.

23                  And obviously we ought to talk some more  
24          about the sense of the group, if we have the time,  
25          about which options this group thinks is the most

1       important, because what we'd like to do, staff  
2       level, is look through these options in more  
3       detail, not just for cement but for the overall  
4       process.

5               So let me stop there. Be glad to take  
6       any questions, although I know we're tight on  
7       time. Abby.

8               MS. YOUNG: Just real quick. This is  
9       terrific. This is exactly, I think, what we need,  
10      and I'm very impressed. So you're going to  
11      basically be doing this for all those sections of  
12      that pie chart by July?

13              MR. HELME: We hope so. Now, sometimes  
14      we won't have any good cost numbers, so you  
15      have --

16              MS. YOUNG: Very impressive.

17              MR. HELME: It's not just us. ICF's  
18      doing some of this, the PIER program's doing some  
19      of it. We have a lot of partners here. There's  
20      been great work done by the PIER program in sinks,  
21      and so on, so --

22              MS. YOUNG: Great.

23              MR. HELME: -- we're kind of, a lot of  
24      times we're massaging data that others have  
25      developed.

1 MS. YOUNG: Okay. Good.

2 MR. HELME: No way can we develop stuff  
3 from scratch. We're taking the best stuff that's  
4 out there.

5 MS. YOUNG: Will it, and maybe, I don't  
6 know, Susan, maybe this is a question for you. Do  
7 you think that the information that you, you know,  
8 the output information, outputs will come to us as  
9 a group as the sectors are being done, or towards  
10 the end, all at once?

11 MR. HELME: I think so, because I  
12 think --

13 MS. YOUNG: Oh, good.

14 MR. HELME: -- it'd be good to have like  
15 ICF make a presentation to the ag and industry  
16 group, you know, separate from waiting until July,  
17 because I, obviously we can't do it in a, you  
18 know, one day, day and a half meeting --

19 MS. YOUNG: Yeah.

20 MR. HELME: -- and cover all this  
21 ground. So we need --

22 MS. YOUNG: Great.

23 MR. HELME: -- subcommittees to cover  
24 the ground and understand the basics so that we're  
25 sort of at a here, here's the portfolio of options

1 across these sectors and we're ready to talk about  
2 it when we get to it. That's, that's my vision,  
3 but again, it depends on you guys.

4 MS. YOUNG: That's what I was hoping  
5 you'd say.

6 MR. HELME: That's what we're  
7 suggesting. But it's open to suggestion. But --

8 MR. HERTEL: A related question. What  
9 access will the public have to the modeling QAQC?  
10 I mean, it's an arcane field and requires some, I  
11 think some technical understanding. Certainly I  
12 don't -- it would be wonderful to have some access  
13 to that both in terms of the sectoral approach  
14 that you're taking, but also in terms of the  
15 macro-economic modeling.

16 MR. HELME: Well, I'll let Susan, I  
17 think we're open --

18 MS. BROWN: Yeah. I can open -- address  
19 that briefly. What he's referring to is a model  
20 that was developed for the Energy Commission's  
21 PIER program at Berkeley. It's called the bear  
22 model, it's a macro-economic model that is really  
23 still in the model validation stage, and my, my  
24 intent would be to have a presentation at our July  
25 meeting on the capabilities of that model, and its

1 limitations, frankly. And that would be exposed  
2 through the IEPR proceedings to the public  
3 process. That's my current thinking. So we'll  
4 also be doing some test runs and presenting  
5 results in July.

6 CHAIRPERSON BOYD: Susan, if I'm not --  
7 MR. HELME: We won't -- I'm sorry.

8 CHAIRPERSON BOYD: I'm just saying if  
9 I'm not mistaken, this is not a brand-new model.

10 MS. BROWN: No, it's an enhancement.

11 CHAIRPERSON BOYD: It's, it's a  
12 modification enhancement of the model the State of  
13 California Department of Finance has used for  
14 years in doing its economic projections, and what  
15 have you. But it's an enhancement and a, and  
16 changes to direct it in the direction we need, so  
17 to, to make sense out of it.

18 MR. HELME: And I think our sense of the  
19 timing --

20 CHAIRPERSON BOYD: It'll be in the  
21 public domain.

22 MR. HELME: Sorry, Jim. I think our  
23 sense the timing is that in July we'd be getting a  
24 sense from you guys of which choices you want to  
25 run. And then we'd run the macro-model, because

1 we can't, it's not worth running until we know  
2 what people think of the, the targets that we  
3 might want to, you know, what are you going to do  
4 in this sector, what are you going to do in this  
5 sector. So that's probably a post-July effort,  
6 that piece.

7 MR. HERTEL: What about this --

8 MR. HELME: Now, this NEMS model on the  
9 utility work, you'll hear some of the runs today  
10 that the utility subcommittee will be deeply  
11 involved in every step of the way. That'll be  
12 very public, in terms of what assumptions go in.  
13 So -- I'm sorry?

14 CHAIRPERSON BOYD: He's just saying he  
15 can't go to Pt. Reyes, he's got --

16 (Laughter.)

17 MR. HELME: Okay. Maybe we should -- I  
18 think Susan's suggesting we go to Andy O'Hare to  
19 respond on cement, and then we'll go to Stacey.  
20 Stacey's going to make Mat Ogonowski's  
21 presentation, but we'll -- while cement is still  
22 fresh in your mind, we'll let Andy speak and then  
23 we'll go on to the next piece.

24 (Inaudible asides.)

25 MR. O'HARE: My name is Andy O'Hare,

1 with the Portland Cement Association. And I  
2 wanted to take this opportunity to share with you  
3 what the cement industry has been doing  
4 nationally on the climate change issue. And as  
5 you'll see as we go along on the presentation,  
6 that it, it -- our activity dates to the mid-  
7 nineties, which is somewhat unique for industry  
8 sectors.

9 But first, before we get started, you  
10 have to have a quiz to keep your, your attention.  
11 And I want to show of hands as to how many people  
12 know the difference between cement and concrete.  
13 That's about typical for the audiences that I  
14 speak to.

15 CHAIRPERSON BOYD: You're not going to  
16 make sure they really know?

17 (Laughter.)

18 MR. O'HARE: I think, I think it's  
19 critical, it's critical certainly for our industry  
20 in, in a climate change context, or really any  
21 type of an environmental policy context, to be  
22 able to --

23 CHAIRPERSON BOYD: Andy, as much as  
24 you'd like to be David Letterman, you're going to  
25 have to --



1 MR. O'HARE: Sorry about that.

2 CHAIRPERSON BOYD: You're going to have  
3 to stick around that --

4 MR. O'HARE: It's critical to be able to  
5 distinguish between cement and concrete, because  
6 cement itself is not used by itself. You've got  
7 to combine cement with water, aggregate, to  
8 produce concrete, and concrete is the material  
9 that is used for construction. It just turns out  
10 that the emissions that are a focus in the climate  
11 change debate come from manufacturing cement,  
12 primarily.

13 So what I'd like to do today is to  
14 identify for you some of our energy efficiency  
15 trends over the last several decades, some of the  
16 progress we've made as an industry sector. I'd  
17 like to then discuss with you our emission trends  
18 and to identify what they are here in California.  
19 And discuss with you our voluntary goal, our  
20 national goal, that we adopted back in the year  
21 2001. And then what approaches that we've  
22 identified for ourselves, voluntary approaches, to  
23 address this climate change issue, and that is  
24 devolved into a three-part program.

25 Before I start, though, I'd like to let,

1       let you know a little bit about the industry. The  
2       industry has about 35 or 40 cement manufacturers  
3       in the country, and we produce about 100 million  
4       metric tons of cement. Actually, we consume about  
5       100 million metric tons of cement in the U.S.  
6       annually. Of that 100 million metric tons, we  
7       import about 25 percent, and that comes from  
8       countries from all over the world. So about 25  
9       percent of the consumption in the country is  
10      imported.

11               Now, in California, that's higher.  
12      California consumes about 12 million tons of --  
13      excuse me. California produces about 12 million  
14      tons of cement, but consumes almost 18 million  
15      tons. And it's those five additional million tons  
16      or so that's imported. Comes in through southern  
17      California and northern California, primarily from  
18      Asia. That's a critical factor to keep in mind as  
19      you deliberate on policy options for the cement  
20      sector.

21               How is cement made? This is a pretty  
22      simplified cartoon. Every cement plant has a  
23      quarry, which is in the lower left-hand corner of  
24      this diagram. It's a limestone quarry, primarily,  
25      and about 75 percent of the ingredients in

1 manufacturing the product are limestone. And it  
2 starts with quarrying that material onsite.  
3 That's then crushed and ground into a fine powder  
4 and mixed with other naturally occurring  
5 ingredients that contain the four essential  
6 elements for producing cement, which are calcium,  
7 silica, aluminum, and iron.

8           The cement industry is a leader both  
9 nationally and internationally in making use of  
10 other industrial byproducts or cast-offs to use as  
11 substitutes for raw materials, and also to use as  
12 substitutes for the necessary fuel. You need the  
13 fuel to fire the kilns, which in this diagram are  
14 underneath that little shed. And those kilns  
15 reach very high temperatures, upwards of 3500  
16 degrees Fahrenheit, where you're converting  
17 limestone. You're essentially burning it directly  
18 confronted with this heat to change the chemistry  
19 of that into what's called clinker, which is an  
20 intermediate product produced in the last step  
21 before you actually grind that up and then produce  
22 the cement by adding to it.

23           So it's a very energy-intensive process,  
24 and it requires a lot of energy to get those  
25 energy-intensities to where you need them to

1 produce this product.

2 The cement then is then inter-ground  
3 with, with gypsum. The clinker is inter-ground  
4 with gypsum and then almost all cement is  
5 transported by truck and train from the individual  
6 plants to be sent primarily to ready-mix concrete  
7 operations, to be -- to be incorporated into  
8 concrete.

9 We, like other industry sectors, but I  
10 think even more so our, our performance really  
11 speaks for itself on this graph. Since the early  
12 seventies we have made significant strides in  
13 reducing the amount of energy that we consume per  
14 ton of product produced. As you can see, we  
15 continue to make that progress although, as with  
16 many other -- with many other industry sectors,  
17 that curve is flattening out, and has flattened  
18 out somewhat in the last few years.

19 Energy costs are significant for this  
20 industry. They represent about 30 percent of the  
21 cost to produce the product. So there is already  
22 significant built-in incentives for cement  
23 manufacturers to find alternative ways to fire  
24 these kilns, and we are very aggressively pursuing  
25 that, and we ourselves, as, as innovators, as an

1 industrial sector in that area.

2           What do we emit? Nationally, we emit  
3 about 90 million metric tons of CO<sub>2</sub>, which  
4 represents about 1.5 to two percent of the  
5 aggregate CO<sub>2</sub> emissions in the United States.  
6 Half of those emissions come from the CO<sub>2</sub> that's  
7 emitted from producing the processed heat. So we  
8 burn coal and other fuels, and you, you liberate  
9 CO<sub>2</sub> from the process, and that represents about  
10 half.

11           The other half of the emissions come  
12 from a term called calcination. It sounds  
13 complicated, but it really isn't. What you're  
14 doing is taking that limestone that's quarried at  
15 each cement plant, which is pretty simple  
16 chemistry, calcium carbonate, CaCO<sub>3</sub>. And when you  
17 subject that molecule to excessive heat like you  
18 do in this process, you liberate the CO<sub>2</sub> molecule  
19 in an attempt to preserve a calcium oxide molecule  
20 which is the building block of cement. And so  
21 half the emissions come from calcination, half  
22 come from combustion.

23           The calcination emissions are  
24 irreducible. We must use limestone to produce  
25 cement. There's no substitute for limestone. As

1 a consequence, the calcination emissions we view,  
2 unless there's some, some substance out there that  
3 we have not yet dug up, are irreducible.

4 What's the picture in California? It's  
5 just a microcosm of the country. It's the same,  
6 same math, roughly. These are data for 2003.  
7 We've got about 12.2 million tons of CO2 produced  
8 by the California cement manufacturers. Again,  
9 it's broken down almost evenly by those liberated  
10 by calcination and those liberated by combustion.

11 In, in 19 -- in 2001, the, the U.S.  
12 cement industry, through the Portland Cement  
13 Association, adopted a voluntary climate change  
14 goal, and we were one of the first industry  
15 sectors in the country to, to do so. And owing  
16 to, owing to the approaches that this industry has  
17 taken on other issues, we sort of kept it to  
18 ourselves for a while. And we didn't formally  
19 announce our voluntary commitment until 2003, in  
20 conjunction with President Bush's Climate VISION  
21 Program.

22 So our goal, our voluntary goal, which  
23 is an intensity based goal, a ten percent  
24 reduction from the 1990 baseline by 2020, is now  
25 incorporated into the President's Climate VISION

1 program, which includes about --

2 MR. HERTEL: Excuse me. You said this  
3 was carbon intensity?

4 MR. O'HARE: It's a CO2 intensity.

5 MR. HERTEL: And not an absolute --

6 MR. O'HARE: It's not an absolute  
7 reduction. No. And I'll get to that at the end,  
8 as to why we, you know, we have adopted an  
9 intensity goal.

10 I wanted to go through a few slides just  
11 to give you a quick sense of the process that  
12 we've gone through as an industry sector, to get  
13 to where we are today. And as I mentioned when I  
14 started, this started, we began early. Very  
15 early. This, this industry views climate change  
16 as a significant potential threat to its ability  
17 to continue to manufacture the product. And I  
18 encouraged, along with, with other industry  
19 representatives, the CEOs in those industries, to  
20 think, think seriously about this issue early on,  
21 in the mid-nineties.

22 We started in 1997 by doing our own  
23 somewhat crude, admittedly, emissions inventory to  
24 get a sense of how much CO2 we emit. Unlike other  
25 sectors, it's not too hard to compute, but we had

1        never done it before. So we did it. And we began  
2        the process of identifying some potential ways to  
3        reduce those emissions.

4                Our CEOs were briefed in '97, the same  
5        year we did this emission analysis, to make them,  
6        you know, part, you know, part of our  
7        deliberations and part of our process. That same  
8        year, the Department of Energy undertook a multi-  
9        sector analysis, one of the first of such analyses  
10       that were sector specific, and the cement industry  
11       is one of, one of those sectors. And so we worked  
12       with DOE to shape some analyses that they  
13       conducted looking at our sector.

14               And then in 1998, we partnered as an  
15       industry sector through the association with EPA  
16       on the Climate Wise Program. It's a program that  
17       no longer exists, and it has been substituted now  
18       by the EPA Energy Star Program, but it was a  
19       voluntary program geared at partnering with  
20       industry to, to find voluntary ways to reduce CO2  
21       emissions. Along with that program participation,  
22       we developed the first cement industry CO2  
23       emissions protocol. And that was prepared jointly  
24       by EPA and ICF Consulting and ourselves.

25               In '99 and 2000, we ramped up our level



1 of analysis and assessed some long-term trends and  
2 some specific reduction strategies. As a  
3 consequence of our participation in EPA's Climate  
4 Wise Program, the association and the industry won  
5 the Climate Protection Award from EPA in the year  
6 2000. And then subsequent to that, we adopted the  
7 voluntary goal that I've already explained to you.

8 In 2001 and 2002, we worked globally  
9 with the World Business Council on Sustainable  
10 Development and the World Resources Institute to  
11 prepare a international cement industry protocol  
12 for measuring emissions from the sector. And that  
13 protocol was actually found grounded in the work  
14 that we had done under the Climate Wise program.  
15 It's a slightly more sophisticated version of what  
16 we did back in, in the late nineties. And as I  
17 mentioned before, we announced our voluntary goal  
18 in conjunction with the President's Climate VISION  
19 program in 2003.

20 So based upon all of our analysis and  
21 deliberations over the past almost decade now, we  
22 have come with, and have been implementing now, a  
23 three part voluntary climate change program. The  
24 first part of the program is directed at the  
25 process, the second part at our product, and then

1 the third part at how our product can be used.

2 Now, in measuring progress towards  
3 achieving our goal, which we do on an annual basis  
4 by surveying our members, we only use the first  
5 two parts, because those are the only two that we  
6 have control over at this point. But we hope to  
7 be able to expand our -- really to mitigate  
8 climate change and to incorporate those reductions  
9 under this product application part of the  
10 program, which I'll discuss.

11 So the first part is the process, the  
12 cement manufacturing process itself. And the  
13 objective of this part of the program is to  
14 increase the efficiency of the process, which  
15 we've been doing now since, aggressively, for, you  
16 know, 30 or so odd years. We're still working to  
17 squeeze as much efficiency as we possibly can.

18 Now, the areas that have the most  
19 promise in, in this area in the future are the use  
20 of alternative fuels, and the tire example that  
21 Ned had raised is one that we've been working on  
22 for a number of years. And we've met with great  
23 success in many parts of the country. California  
24 has been both a success and not so, and depending  
25 upon where you are geographically. And we

1       certainly hope to, to work with the state of  
2       California to enhance that.

3               But tires is a good example of a fuel  
4       that can be very safely managed in a cement kiln,  
5       which reduces -- it's got a lower carbon content  
6       than coal, and it reduces a solid waste problem  
7       and, and at the same time it goes towards  
8       mitigating some of the climate change concerns.  
9       But there is a, a list of materials as long as my  
10      arm that the industry can use as a substitute for  
11      raw materials and fuels, and they're re-used in  
12      many, many cement plants around the world. And  
13      there are ways to quantify the impact their use  
14      may have, just like tires, on climate change.  
15      Which we are doing.

16              Now, the added benefit for, for burning  
17      things like tires and other materials that would  
18      otherwise be burned in other devices like  
19      incinerators, is you get the reduction in other  
20      pollutants, NOx, SO2, CO, and others.

21              Now, in the, in the process area, we are  
22      measuring our progress in enhancing our energy  
23      efficiency. We do an annual survey, as I  
24      mentioned before, and we're utilizing the World  
25      Business Council in our protocol to quantify those

1 emission reductions. And many of my member  
2 companies have been quantifying their reductions  
3 under the Department of Energy's 1605(b) program,  
4 and that was started under our participation with  
5 the Climate Wise Program. So some of those  
6 reductions have been, have been banked now with  
7 DOE, since the last nineties.

8 And then we produce an annual report.  
9 And we're just now in the process of posting to  
10 our website, cement.org, a new annual report which  
11 identifies a whole bunch of environmental metrics  
12 and, and where we're going.

13 On the product formulation category,  
14 this is a, this is the part of the program that  
15 addresses the product. How can we make the  
16 product itself less carbon intense. And two of  
17 those have been discussed already by Ned today.  
18 One is the incorporation or intergrinding of  
19 limestone with Portland Cement. The second is  
20 blended cements, so incorporating things like fly  
21 ash and slag and other industrial byproducts into  
22 your cement. And then part of the, part of both  
23 of these is harmonizing some of the cement  
24 specifications.

25 There currently are different

1 specifications that apply to different states,  
2 based upon a choice by state departments of  
3 transportation, and by harmonizing these standards  
4 we make, we make an attempt to uniform -- make,  
5 make uniform applications of some of these good  
6 cement specifications that allows for the  
7 integration of, of limestone, for example.

8           The limestone issue is one that we've  
9 worked on now for three or four years with the  
10 ASTM. And what it allows cement manufacturers to  
11 do is to substitute a certain amount of, of their  
12 clinker with limestone. And so you have a direct  
13 reduction in the amount of CO2 emitted when you  
14 intergrind that limestone with your clinker. This  
15 practice has been done in Canada for about 30  
16 years. It's been done in Europe for even longer  
17 than that. And many many states across the  
18 country have already adopted this ASTM change to  
19 their cement specification, and we're still  
20 encouraging Caltrans and California to do the  
21 same.

22           Product application is the last part of  
23 our program, and I think this one has, has by far  
24 the most, it's the sexiest. It's got the most  
25 potential for solutions to mitigate climate

1 change, and it's the least mature of our, of our  
2 program. And we hope to change that in the next  
3 year or so, partnering with the state of  
4 California, partnering with DOE, partnering with  
5 whoever we can partner with.

6 There are three areas in this, in this  
7 category that we're focusing on. And there are  
8 many others, but these are the three we're putting  
9 our energy into. And the first is using concrete  
10 pavements or rigid pavements to improve  
11 principally heavy truck traffic miles per gallon.  
12 Rigid pavements are less flexible, obviously, and  
13 we've done some research on behalf of, of some of  
14 our colleagues, with some of our colleagues in  
15 Canada, that indicates that you can save as much  
16 as 15 to 20 percent of, of your energy consumed by  
17 these heavy trucks on rigid pavements. That's a  
18 long-term project, but it does have some  
19 significant promise.

20 The next one is the energy efficiency  
21 that results from concrete, low-rise concrete  
22 structures, commercial buildings and, and  
23 residential structures. And I do note that  
24 outside of this room here there's an example of  
25 one of the technologies that we are promoting to

1       this end, insulated concrete forms where you pour  
2       concrete between two pieces of insulation, which  
3       results in a extremely high R value for that  
4       individual structure. And we've done some  
5       analysis, and Lawrence Berkeley National  
6       Laboratory has also done some similar analysis  
7       that indicates that the, the CO2 depth resulting  
8       from producing cement can be easily offset by a  
9       small penetration of concrete houses in the  
10      residential housing market.

11               Last, but not least, is the urban heat  
12      island issue. And this is the issue of there  
13      being dark colored surfaces in urban areas,  
14      particularly in the southern part of the country,  
15      that absorb heat, which results in an increase,  
16      then, in that urban temperature, which increases  
17      electricity demand, it increases CO2 emissions,  
18      and concrete surfaces has a role to play in  
19      mitigating that. Concrete surfaces are lighter  
20      colored, they reflect more heat, they then work to  
21      reduce this urban heat island effect over time.  
22      And so those are, these are the three areas of  
23      product application that we are pursuing.

24               But taken together, they could  
25      significantly reduce, over decades, the amount of

1 CO2 emitted by this country.

2 MS. BROWN: Thank you.

3 MR. O'HARE: So I just wanted to take  
4 this opportunity to highlight for you what we're  
5 doing. We've got a reasonably mature program that  
6 we're undertaking and have been undertaking on  
7 behalf of the, of the National Portland Cement  
8 Industry.

9 I, I must take this opportunity to, to  
10 raise some concerns, though, about some of the  
11 policy measures that, that are being considered,  
12 and the cap and trade one would be a concern for  
13 us here in California and elsewhere in the  
14 country. That doesn't mean that we'd reject it  
15 for -- at some point in the future, but the cement  
16 industry, unlike the steel, auto manufacturing,  
17 many other heavy industrial sectors in the  
18 country, is actually growing.

19 There are three greenfield cement plants  
20 that have been constructed and opened in the last  
21 four years. And domestic cement production  
22 capacity has gone up from 80 million metric tons  
23 in 1996 to 85 or 90 today. And we're anticipating  
24 continued additional growth. So a cap isn't,  
25 wouldn't allow us to do the kind of growth that



1 we'd like, we'd like to do in this industry.

2 But coming back to the last part of my  
3 presentation, that growth, those emissions can be  
4 offset by some of these creative applications that  
5 I've identified for your information today.

6 Any questions? I don't want to hog the  
7 podium here.

8 CHAIRPERSON BOYD: Josh.

9 MR. MARGOLIS: You said the cap is a  
10 concern to you because it would limit your ability  
11 to grow.

12 MR. O'HARE: Right.

13 MR. MARGOLIS: But then you clarified  
14 that and went on to say but the emissions  
15 associated with the growth could be dealt with by  
16 these measures.

17 MR. O'HARE: They could be, but I think  
18 what the -- the timing of these two are not the  
19 same. And the thing that we confront, as I was  
20 mentioning earlier, we import about 25 percent of  
21 our consumption today, and California is uniquely  
22 situated vis-a-vis that issue in that you're on a  
23 coast, and you have direct access in California to  
24 cement manufacturers in China and Asia, and --

25 MR. MARGOLIS: But your concern would be

1       that there would be an un-level playing field with  
2       product coming in that doesn't, is not subject to  
3       the cap.

4               MR. O'HARE:  No, it's not even that.  
5       You put a cap on, on cement emissions in  
6       California in the next three years.  And what that  
7       is going to do immediately is signal to the cement  
8       manufacturers in California that don't expand your  
9       plants, and therefore, import more cement from  
10      Asia.  I can almost guarantee you that most of the  
11      cement produced in Asia isn't produced in the same  
12      fashion it is here, in the same environmentally  
13      protected fashion.

14             So you're sending a signal that is going  
15      to result in perhaps reductions in cement capacity  
16      in California, but certainly no additional  
17      increases in cement production in California.  And  
18      you don't want to incentivize that.  I don't think  
19      you want to incentivize that.

20             Now, coming back to my other part of my  
21      presentation where these product applications have  
22      a lot of promise, they are going to require  
23      decades for, for implementation.  And so if you,  
24      if you implement a near term cap that shuts, that  
25      shuts down a potential for production increases,

1       you sort of, it's self-defeating. So any kind of  
2       a cap, if there ever was one, which we don't  
3       endorse, would have to be way out into the future.  
4       Way out in the future.

5               MR. MARGOLIS: What do you think of  
6       Ned's cost predictions for what it costs to reduce  
7       emissions by X percent?

8               MR. O'HARE: Well, for the, for the two  
9       mechanisms that, that are our focus, the limestone  
10      additions one and the limit cement one, I think  
11      those numbers are, are reasonable. I haven't gone  
12      through all the assumptions that are built into  
13      that, but those are the least, least cost options  
14      that confront this, this industry nationally.

15              Now, from a California perspective, the  
16      blended cement issue could be a problem. The two  
17      ingredients that, that cement manufacturers use  
18      across the country today are fly ash and steel  
19      slag. And there's a very low level of  
20      availability of those two materials in California.  
21      And so if anything like this was mandated, that  
22      would then result in, in having to import that  
23      from outside California.

24              So the issue I would, I would encourage  
25      you to pursue aggressively in the near term is the

1 limestone additions issue. That one is the  
2 cheapest, and that one can, can give you the,  
3 tomorrow, the most significant amount of  
4 reductions at the lowest cost. I mean, that's  
5 just a no brainer, a total no brainer.

6 MS. DUXBURY: Is, is the cement industry  
7 in Europe subject to the Kyoto caps?

8 MR. O'HARE: It is.

9 MS. DUXBURY: I suppose it's a little  
10 soon to get any sense of how they're, you know,  
11 are they just importing from Asia, or how are  
12 they --

13 MR. O'HARE: No, no, no. I mean, it's a  
14 little bit soon to -- it's too soon to get a sense  
15 of how that's really going to affect them. But  
16 in, in contrast to the U.S., the cement industry  
17 in Europe is not growing. So there's no growth in  
18 their, in their production capacity. In fact, in  
19 many European countries there's been a shrinkage.  
20 There's some Russias, there's some equivalent to  
21 Russia in the cement sector in Europe. So they've  
22 got, they've got emissions that they can, they can  
23 borrow from in this, certainly in this first  
24 trading period, and perhaps even in the second  
25 trading period, without making any painful

1 choices, because they're not growing.

2 MS. DUXBURY: And just one other  
3 question on the combustion side. Does, in looking  
4 at your map of, or the cartoon of the process,  
5 does the combustion have to happen near the  
6 quarry, or can that be separated out to another  
7 location? Like if you, we'll take combined heat  
8 and power, or cogen.

9 MR. O'HARE: Well, the, this energy used  
10 to be very big in, in -- I wouldn't call it  
11 combined heat and power, but, but cogen, back at  
12 the turn of the century. The turn of the last  
13 century. Almost every cement plant had a  
14 cogeneration facility. And there's about three or  
15 four in the country that still do have  
16 cogeneration facilities, because they've been paid  
17 off. The price of electricity at that point was  
18 much higher than it is today.

19 And what's happened over that time  
20 period is the price of electricity has gone down,  
21 and the process itself has changed dramatically.  
22 So back in the, in the turn of the last century,  
23 the excess heat emanating from a cement plant was  
24 much hotter, 700 degrees Fahrenheit or so, than it  
25 is today. It's, it's roughly about 200 degrees

1 Fahrenheit today. And so it makes it tough, under  
2 current combined heat and power technology, to  
3 extract enough energy from that excess heat to  
4 generate electricity.

5 There's probably some technologies that  
6 are being researched today that, that could  
7 perhaps be applied to the cement sector in the  
8 future, but we've made such strides in reducing  
9 the amount of energy consumed per ton of product  
10 produced, and as a consequence we've reduced a lot  
11 of this excess process heat that you could use for  
12 combined heat and power at a cement plant. But we  
13 don't reject the idea. We don't reject the idea.  
14 We're continuing to research it.

15 CHAIRPERSON BOYD: Jason, do you have --  
16 yeah.

17 MR. SHEARS: Yeah, just two quick  
18 questions. First, it looks like your, your  
19 estimates of California's cement related CO2  
20 emissions are somewhat, in some cases,  
21 substantially higher than what the Energy  
22 Commission's official inventory is, and I'm  
23 wondering if you have any thoughts on --

24 MR. O'HARE: Excuse me. I'm not --  
25 I'm --

1                   MR. SHEARS: It seems like your, your  
2 estimates of 12.2 million tons for California is  
3 much higher than the official estimate for, for  
4 perhaps just the state. The official estimate is  
5 5.6 for California, so it's double, or --

6                   MR. O'HARE: Well, let me --

7                   MR. SHEARS: -- what is the --

8                   MR. O'HARE: Let me explain why. The  
9 way the EPA --

10                   (Parties speaking simultaneously.)

11                   MR. O'HARE: The way the EPA quantifies  
12 the emissions is the same way that they have been  
13 quantified here, and that only represents half of  
14 them. That's just half that comes from  
15 combustion, that come from calcination. So the  
16 5.6 are probably just those that come from  
17 calcination. Because our other emissions from  
18 combustion are aggregated amongst the industrial  
19 emissions.

20                   MR. SHEARS: Thank you.

21                   MR. O'HARE: And frankly, that's the  
22 reason we --

23                   MR. HELME: But it is --

24                   MR. O'HARE: -- because we have these  
25 unique emissions.

1                   MR. HELME: It is interesting, your  
2                   numbers are higher than we used. The combination  
3                   10.4, and you're 12.2 --

4                   MR. O'HARE: That was from '99. That  
5                   was from 1999.

6                   MR. HELME: Yeah.

7                   MR. O'HARE: And it's -- 2005.

8                   MR. HELME: 2005. Okay. And so it's  
9                   grown.

10                  MR. O'HARE: So, you know, production  
11                  has increased in California, and emissions have  
12                  increased right along with it.

13                  MR. SHEARS: And my, my second question,  
14                  more importantly, is do you have a sense for  
15                  whether or not there's data on the carbon  
16                  intensity of the imported cement to California?

17                  MR. O'HARE: The carbon intensity in, in  
18                  terms of the kind of fuel they use?

19                  MR. SHEARS: Intensity in a per ton of  
20                  cement delivered to California, for a start.

21                  MR. O'HARE: Most, most developing  
22                  countries make use of coal as their, as their  
23                  generating fuel. Certainly China, which produces  
24                  most of the, of the cement in Asia. And up until  
25                  recently, it was a good chunk of the imports



1 coming into California. The -- the permanent fuel  
2 there is coal. I'm not sure if I'm answering your  
3 question, but --

4 MR. HELME: Well, we're looking for  
5 actual data, though, I assume. Tons of CO2  
6 produced per ton of cement product, comparatively.

7 MR. O'HARE: The efficiency, the  
8 efficiency of the process itself, I think that's,  
9 maybe that's what you're asking me. The  
10 efficiencies vary around the world. The European  
11 plants are on average more efficient than, than  
12 North American plants. And that owes to the, the  
13 cost of fuel, the historic cost of fuel over the  
14 last two or three decades. That has changed  
15 dramatically in the U.S. in the last five years.

16 MS. DUXBURY: Are you talking carbon  
17 efficiency or energy efficiency?

18 MR. O'HARE: Energy intensity.

19 MS. DUXBURY: And it's just energy --

20 MR. O'HARE: We're talking about energy  
21 intensity.

22 MS. DUXBURY: -- there's not that like  
23 next level of carbon intensity --

24 MR. O'HARE: We haven't done that  
25 analysis, and that can be done.

1                   MS. DUXBURY: That would be very  
2                   interesting.

3                   MR. O'HARE: That can, that can be done,  
4                   but we haven't done that analysis, and I'm not  
5                   aware of it existing on an international basis.

6                   MR. HELME: We, we have some data that  
7                   was done for an international -- that shows you  
8                   country, and actually the U.S., I don't know about  
9                   California's average, but the U.S. average is  
10                  worse than most countries. It's basically a  
11                  function of when the plant was built, maybe --

12                  MR. O'HARE: I think, I think you're  
13                  talking about --

14                  (Parties speaking simultaneously.)

15                  MR. O'HARE: In terms of China, China's  
16                  actually lower carbon per ton of cement than the  
17                  U.S. overall. Now, whether that's true for  
18                  California, I can't answer. But -- and certainly  
19                  Japan and Korea are --

20                  MR. O'HARE: My guess would be, though,  
21                  that --

22                  MS. DUXBURY: Is that driven by the fuel  
23                  used for combustion?

24                  MR. HELME: And the, and the newness of  
25                  the plants, the efficiency of plants and --

1 MS. DUXBURY: And the efficiency of the  
2 plants.

3 MR. HELME: -- that sort of stuff.  
4 Right.

5 MR. O'HARE: My, my guess would be  
6 though, Ned, that that's energy intensity and not  
7 carbon intensity. I've never seen carb --

8 MR. HELME: I can share the numbers with  
9 you.

10 MR. O'HARE: Yeah. I've only, we've  
11 only -- we've only done energy intensity.

12 MR. HELME: Would it be useful to try to  
13 get numbers like that --

14 MS. DUXBURY: That would be very  
15 interesting to see that.

16 MR. HELME: -- that you folks would  
17 agree with. You know, just, just as a benchmark.

18 MS. DUXBURY: Uh-huh.

19 MR. MARGOLIS: But Ned, how can that be?  
20 I mean, how can you, how can you burn fuel, how  
21 can you burn coal and end up with -- even with a  
22 newer plant I think you end up with a lower carbon  
23 per product, lower amount of carbon per product --

24 MR. HELME: Per unit.

25 MR. MARGOLIS: -- per unit, if you're

1 burning coal than if you're burning natural gas --

2 MR. HELME: Well, remember, a fair  
3 amount of it here is burning coal. I mean, tires  
4 is a new movement, but it's not all tires by any  
5 means. It's still more coal than tires  
6 nationally, I think.

7 MR. O'HARE: Yeah. But you, you're  
8 using the energy more efficiently.

9 MR. HELME: Yeah, the energy efficiency  
10 of the kiln is really key here.

11 MR. O'HARE: They're getting more tons  
12 per, you know, tons of cement produced per unit of  
13 energy consumed.

14 MR. HERTEL: Well, I, I thought you said  
15 that you went from something like very high heat  
16 levels in the past in the California kilns down  
17 to, what did you say, 200 now, 800 to 200?

18 MR. O'HARE: That's the excess heat.  
19 That's the excess heat.

20 MR. HERTEL: Excess heat.

21 MR. O'HARE: Excess heat. It's the  
22 waste, wasted heat.

23 MR. HERTEL: But you had to improve your  
24 kiln efficiency in the course there's some of  
25 that.

1                   MR. O'HARE: Oh, definitely. It's a  
2                   direct result of kiln efficiency improvements.

3                   MR. HERTEL: So I guess it would be a  
4                   question of looking at the process and seeing  
5                   where most of the energy is, is used, and it  
6                   sounds like combustion is, is a huge part of it.  
7                   Probably all your parasitic load in the plants is  
8                   a key issue to where you can improve efficiency  
9                   there. And newer equipment, of course, would do  
10                  that, newer motors newer crushing devices, and so  
11                  forth.

12                 MR. O'HARE: Yeah. Those are in the  
13                  noise, honestly. I mean, your, the biggest energy  
14                  consumption is in the kiln itself. And, of  
15                  course, you can, you can do, you can enhance your  
16                  efficiency with motors and, and grinding  
17                  equipment. And believe me, we have done that and  
18                  we focused on that because it's just still a cost.  
19                  But compared to the total energy consumption, it's  
20                  a small percentage.

21                 MR. MARGOLIS: How does the California  
22                  picture show up compared to this chart? This is a  
23                  national chart, I guess, in terms of --

24                 MR. O'HARE: That's a national chart.

25                 MR. MARGOLIS: How does the California

1 chart --

2 MR. O'HARE: And I, I have not generated  
3 the California only chart. My guess is the curve  
4 would look very similar. There's a similar mix of  
5 processing here in California, so.

6 MR. MARGOLIS: Ned, could we see, or do  
7 you have, Andrew, do you have a chart that shows  
8 this for overseas product manufacturing?

9 MR. O'HARE: There is that data  
10 available, energy intensity data available.

11 MR. MARGOLIS: And if you laid the, the  
12 international chart on top of this one you, you  
13 would show a lower curve?

14 MR. HELME: I'm not sure.

15 MR. O'HARE: It depends on the country?

16 MR. HELME: In today's levels, U.S. is  
17 lower, so then maybe Canada, in terms of --

18 MR. O'HARE: Very surprising, most  
19 developing countries are better. India is not,  
20 but China is.

21 MR. HELME: As I understand it, it's  
22 basically a function of when the plants are built,  
23 and --

24 (Parties speaking simultaneously.)

25 MR. HELME: Is most cement domestically,

1 is it fueled with coal, or, or what?

2 MR. O'HARE: It depends on the part of  
3 the country you're in, and 75 percent of the fuel  
4 used to produce cement today is coal. But it  
5 varies by --

6 MS. DUXBURY: Is that nationally, or  
7 global?

8 MR. O'HARE: It's nationally.

9 MS. DUXBURY: And globally is it about  
10 the same?

11 MR. O'HARE: Globally, I don't have the  
12 numbers. I don't possess those numbers. But if I  
13 had to guess I'd, I'd say they're close. And in  
14 some countries, they're going to be much higher  
15 use of coal. You know, for example, China.  
16 China's probably 95 or, or 100 percent coal.

17 MR. MARGOLIS: This is a true statement,  
18 isn't it, that no cement plant in California burns  
19 coal.

20 MR. O'HARE: No. Every cement plant in  
21 California burns coal.

22 MR. HELME: Most of --

23 MR. O'HARE: Since we're digressing  
24 here, I've got to tell you this story. Back in 19  
25 -- back in 1975 we had an energy crisis. Do you

1       remember that? And congress passed, in sort of a  
2       rat-a-tat fashion, three significant pieces of  
3       energy legislation which no one remembers. And  
4       one of the key focuses of that, of those pieces of  
5       legislation was to move industrial processes like  
6       ours away from natural gas. Back in 1972 --

7               MS. DUXBURY: We remember.

8               MR. O'HARE: -- the energy portfolio for  
9       cement manufacturing was 35 percent to 40 percent  
10      natural gas to fire cement kilns. We're now, as I  
11      told you, 75 percent. But that was direct result  
12      of encouragement from congress to use domestic  
13      fuel and to conserve natural gas. We did a great  
14      job. And it's, now we're at the other side of  
15      that, and don't want to be penalized for having  
16      done a great job. Yes.

17              CHAIRPERSON BOYD: That was the  
18      president that wore the sweater all the time.

19              MR. CAVANAGH: Of course, that  
20      requirement was repealed a good 15 years ago.

21              MS. BROWN: Some time ago.

22              MR. O'HARE: Yeah, but we made all these  
23      investments in solid fuel handling, and, you know,  
24      it's, you know the story.

25              MR. CAVANAGH: What about the three new



1 plants that you --

2 MR. O'HARE: They're coal-based plants.

3 Coal, coal-fired plants.

4 CHAIRPERSON BOYD: Andy, a quick  
5 question. The expansion you, you talk about going  
6 on in the cement industry, is that going to just  
7 keep up with the demand in this nation, or will it  
8 make inroads into the amount of cement that has to  
9 be imported directly?

10 MR. O'HARE: That's a good question. I  
11 think the, certainly the desires of domestic  
12 cement manufacturers is to be able to produce it  
13 here. It's less, it's more predictable. There's  
14 all kinds of uncertainty related to imports.  
15 Availability of ships, which has been a big issue  
16 for the last two years. And the uncertainty of,  
17 of, you know, politics from other countries, et  
18 cetera. So I think first preference would be to  
19 produce it here, and to produce all of it here.

20 The projections that we have as an  
21 industry sector is consumption and demand are both  
22 going up. Both going up, and going up for  
23 primarily aging infrastructure issues. Replacing  
24 bridges, replacing roads, replacing this,  
25 replacing that. And then, hopefully, we hope to

1 be able to make a significant dent in the housing  
2 market.

3 CHAIRPERSON BOYD: Do we have raw  
4 material constraints in this country?

5 MR. O'HARE: We don't.

6 CHAIRPERSON BOYD: Is limestone  
7 unlimited?

8 MR. O'HARE: No. It's, it's not  
9 everywhere, but it's where it needs to be. And we  
10 can certainly meet our domestic cement needs for a  
11 very, very long time. Thirty-eight states produce  
12 cement, and California is the largest  
13 manufacturer. And the manufacturing generally  
14 coincides with population base, although it does  
15 also align itself with the availability of  
16 limestone. So, for example, Missouri is a very  
17 significant cement producer, although a, a low  
18 population state.

19 CHAIRPERSON BOYD: Any other questions?

20 MS. YOUNG: A quick one. So one of the  
21 policies, or a policy recommendation that could  
22 potentially come out of this committee, for  
23 example, would be to give or require preferences  
24 in, say, state and even local government  
25 procurement policies to favor or increase the

1 consumption of climate friendly blended cement.  
2 Would that be something that would be supported  
3 industry-wide, something like that?

4 MR. O'HARE: Well, I'd start with the  
5 limestone issue.

6 MS. YOUNG: What?

7 MR. O'HARE: I'd start with the  
8 limestone part of that equation.

9 MS. YOUNG: Yeah, uh-huh. Right.

10 MR. O'HARE: I, I'd probably, I'd  
11 probably start there. That, that's got the most  
12 near term potential benefit for the state. It can  
13 be done, it can be implemented in a year. The  
14 blended cement issue is still an issue that we're,  
15 we're pursuing nationally, but the availability of  
16 the materials to blend into cements in California  
17 is limited. So we don't have as much potential in  
18 the near term here for that. But the limestone  
19 thing is tomorrow, and a recommendation regarding  
20 limestone should be in your paper.

21 MS. YOUNG: You know, it might be  
22 helpful, Ned, when, if there's something like that  
23 that's almost, we could say a no brainer, to make  
24 that in, like, highlight in pink or something for  
25 us when you, you send us the, the draft, so that

1 we can look at that and, and move on.

2 MR. HELME: Everybody agrees.

3 MS. YOUNG: Yeah.

4 CHAIRPERSON BOYD: Okay, Andy. Thank  
5 you very much. Appreciate that.

6 MR. O'HARE: Thanks for the time. I  
7 appreciate it.

8 MS. BROWN: Yes. I, I also want to thank  
9 the other representatives of the cement industry  
10 that came here today, John Bennett and Bob  
11 Houston's here, and Tom Tietz, for allowing us to  
12 examine your industry.

13 Stacey, we're going to make one brief  
14 diversion from the stated agenda, and I apologize  
15 to you, too, again. I asked Mike Scheible, who's  
16 here representing CalEPA, he is the Deputy  
17 Director of the Air Resources Board, to give us a  
18 five minute update on the infrastructure  
19 collaborative that CalEPA and business  
20 transportation and housing agency are conducting  
21 in California. And unfortunately, he has a  
22 conflict, so I'm going to ask Mike to come up to  
23 the mic for a brief comment, which would've fit  
24 nicely with our transportation segment, which  
25 started a few minutes ago, right? So we are

1 running behind schedule, so I beg your indulgence.

2 CHAIRPERSON BOYD: Susan, you don't need  
3 to break to fix the phone, to get that fixed?

4 MS. BROWN: Apparently that's been --  
5 it's been fixed.

6 MR. SCHEIBLE: Good morning, and thank  
7 you for having me here. I'll try to keep my  
8 comments brief so I can answer any questions in  
9 the, in the free time we have.

10 As, as you probably all know, the impact  
11 of international trade on California has been  
12 extreme over the last few years. Over the last  
13 ten years trade, through especially the southern  
14 California ports, has doubled or tripled,  
15 depending on whose statistics you look at. And in  
16 2004, it became apparent through numerous studies  
17 of the impact that this was having on health and  
18 air emissions, the impact that it was having on  
19 our transportation system, and the fact that the  
20 infrastructure simply wasn't supporting the ports.  
21 We had what some refer to as a meltdown, where  
22 ships were staying twice as long and they were  
23 parked outside the, the port.

24 This clearly had adverse impacts on  
25 every sector imaginable. You couldn't travel the

1       freeways, you couldn't get your goods through the  
2       port, the pollution went up, the energy use went  
3       up. And in 2004 there was a lot of legislative  
4       attention and attention by various agencies to the  
5       different aspects of this problem.

6               Coming out of that, the Business  
7       Transportation and Housing Agency and CalEPA saw  
8       the clear need to put our efforts together and try  
9       to address this issue in a more comprehensive  
10      format, where we looked at the economic impacts of  
11      the ports, which are -- and the impact of  
12      international trade, which are mostly positive in  
13      terms of job creation and net worth for  
14      California, the environmental impacts, which  
15      unfortunately are mostly negative and need to be  
16      crunched around. The impacts on the  
17      transportation system, which demand a large  
18      increment of new investment for infrastructure.

19             And then the aspect of port security and  
20      how do we make sure that the ports continue to  
21      operate and are secure and don't, one, pose risk  
22      to the populations in the areas where the ports  
23      are; and, two, can they operate efficiently  
24      because the security measures are worked out and  
25      goods continue to flow.

1                   So towards the end of last year we  
2           announced a joint effort involving CalEPA and  
3           business and transportation, headed by Secretaries  
4           McPeake and Lloyd, of our two agencies. We went  
5           out in January and had two listening sessions, one  
6           in January, one in early February, one in Los  
7           Angeles, one in the Bay Area. I think on total we  
8           had almost 500 people attending one or other of  
9           the sessions, and they operated until everyone had  
10          had at least a chance to speak for several  
11          minutes. All groups and sectors were, were  
12          represented, and it became clear that there's  
13          intense interest in this arena.

14                   From that effort we have put together a  
15          draft report, a Phase One report that summarizes  
16          the, the impact of the ports economically, and how  
17          the system works, the need for additional  
18          investment in the transportation system and the  
19          benefits of that investment, the air quality  
20          problem and other environmental and community  
21          impact issues that are impacting us from ports,  
22          and we put that out in the middle of March. We  
23          had one more session to hear comments on that  
24          report, and are still accepting comments on the  
25          report through the end of this week.

1           We have established a web page that  
2       contains all the information on this process. I'm  
3       not going to give you the address. If you want to  
4       go there you simply go to the CalEPA home page or  
5       the business and transportation agency home page,  
6       and you will see a link there that links you to  
7       the web page. And on that is the report, all the  
8       comments, all the presentations, everything else  
9       we can think, as a resource document.

10           Where we're going from here is we're  
11       going to take the comments and we are going to try  
12       to put together a plan that has the approval of  
13       the Schwarzenegger administration to go ahead to  
14       say how are we going to make sure we get the good  
15       parts of this trade, the economic benefits, the  
16       jobs, the other things that that brings to  
17       California. Because what we're seeing is that the  
18       importing business is acting as a replacement for  
19       the jobs that we've lost in the industrial sector.  
20       And it is, given the fact the electronics industry  
21       isn't what it once was, it is the biggest job  
22       growth sector in, in the state.

23           And why we do that, how do we make sure  
24       that the communities that are located next to  
25       ports and along rail lines or freeway lines or



1 next to railyards don't suffer, and their health  
2 is protected, the environmental impacts are  
3 addressed, and we figure out a way to pay for the  
4 transportation improvements.

5 And in that area, in terms of global  
6 warming, I, I don't know what the net impact of  
7 all the moving the goods around the world is, in  
8 terms of -- it can't, can't be too good, we're  
9 using a lot of energy to ship them around. But to  
10 the extent we do it efficiently and we don't have  
11 traffic jams on the freeway, we don't have ships  
12 sitting idling at port waiting to unload, we have  
13 a greater movement to more environmentally  
14 friendly ways such as if the box is going to  
15 Chicago you put it on the train on the port and  
16 you get it to Chicago quickly, as opposed to  
17 driving it across the nation, would improve the  
18 situation.

19 So that's my snapshot summary in the few  
20 minutes allowed. I'm happy to answer any  
21 questions that you have. Thank you.

22 MR. HERTEL: When's your report  
23 deadline?

24 MR. SCHEIBLE: The report deadline is to  
25 get a second version out in the next month and a

1 half. That will not be a final report. What we  
2 envision happening is then some more stakeholder  
3 processes, one to address the issue of how to pay  
4 for the \$40 billion in projects that are thought  
5 to be needed and, and how to go about addressing  
6 the issues, resolving them.

7 A second would be to put together what I  
8 call -- and please, Jim Boyd will recognize, a  
9 mini-sip, a mini air quality plan related to port  
10 related activities to show how we can take the big  
11 increase in projected emissions that will occur if  
12 we don't do something to clean up the ships and  
13 clean up the trains and clean up the trucks, and  
14 turn that into something that is compatible with  
15 our need to keep air quality clean in, in  
16 California, and to avoid adverse community  
17 impacts.

18 MR. HERTEL: Thanks.

19 CHAIRPERSON BOYD: Mike, I commend you  
20 for using the word efficiency, which has become  
21 the energy byword of, of this new century. And I  
22 want to just ask you, you know one of the concerns  
23 we've had as an energy agency is that in this look  
24 that's being taken by CalEPA and BT&H at port  
25 infrastructure, that, you know, we broaden the

1 view to look at the entire system, as we have to  
2 do with everything now, because everything's  
3 inter-connected. But one of the concerns is not  
4 only energy consumption but provision of  
5 facilities to meet, you know, what we finally  
6 agree upon are, you know, energy needs. And the,  
7 unfortunately, we have to import energy sources,  
8 as you have import everything else.

9 And I haven't touched base with this for  
10 a while, but is that something that's going on?  
11 Because I know, unfortunately, while you were  
12 holding your hearing in L.A., my agency was  
13 holding a hearing over in Wilmington about the,  
14 the needs to work on the, the ports and the import  
15 structure to address, you know, energy import  
16 needs.

17 MR. SCHEIBLE: We're well aware of that.  
18 The WSPA has become engaged in terms of on the  
19 petroleum and, and oil side. Clearly, the ports  
20 not only import containers with consumer goods but  
21 import all the raw materials that we need, and we  
22 need, we need a system that works for California's  
23 economy decades into the future.

24 But there, there is a competition going  
25 on in terms of, you know, the desired space at the

1 port is coveted by several different users, so --  
2 and we have to work out a system to make sure that  
3 there's a priority applied so that the, the  
4 essential things that need to happen for our  
5 economy to work, our energy security to work, get  
6 accomplished.

7 CHAIRPERSON BOYD: Any other questions?

8 Thanks, Mike.

9 MR. SCHEIBLE: Thank you.

10 MS. BROWN: Okay. Now we're going to  
11 call on Stacey Davis, and we're back to our  
12 agenda, for a presentation on methane recovery.

13 MS. DAVIS: Thanks, Susan. I don't have  
14 to stand on my tiptoes here.

15 All right. This is a presentation that  
16 was developed by Matt Ogonowski. I'm giving it in  
17 his absence, as was mentioned, and it builds a lot  
18 on the ICF draft results that were shared with us  
19 earlier this month. And I know they'll be doing a  
20 final analysis at the end of this month.

21 There's a lot of information I'm going  
22 to try to cover, so I'm going to run through  
23 pretty quickly. If you have questions, Matt  
24 Ogonowski's on the phone and hopefully will be  
25 able to answer most of those for us.

1                   As an overview, methane emissions from,  
2                   from the dairy sector have been growing pretty  
3                   quickly. Right now, in 1999, they represented  
4                   just over one percent of the state emissions, so  
5                   again, not a big share in the scheme of things,  
6                   but it's big enough that we've decided to look at  
7                   them. And, and also, they do present some  
8                   interesting opportunities for emissions  
9                   reductions, based on the early analyses that we  
10                  have.

11                  But the growth rate for the sector is  
12                  pretty quick. The growth went from just over  
13                  three to just over five times in the 1990s, a five  
14                  percent annual rate of growth. And they do expect  
15                  continued growth, I don't think quite at that  
16                  rate, but, but it is a growing sector. And, and  
17                  digesters is one option, and a promising one, for  
18                  reducing emissions from this sector.

19                  In terms of the current state of play,  
20                  there are several different policies that have  
21                  been recently implemented to try to encourage  
22                  penetration of manure digesters for the dairy  
23                  sector. One is the Dairy Power Production  
24                  Program. It provides either buy down grants for  
25                  capital costs or production related incentives.

1 And 60 farms applied, 14 projects were accepted,  
2 and grants were totaling \$5.8 million. This  
3 particular program is now closed, but it's a model  
4 of, you know, what an incentive program might be  
5 able to do.

6 Another incentive program that applies  
7 more broadly to distributed generators is the  
8 Self-Generation Incentive Program. And there are  
9 some maximum size limits for this. There has been  
10 some participation by dairy farms, about 11 farms  
11 as of January 2005 were, were in the program,  
12 totaling 2.3 megawatts. Their incentives were in  
13 the range from \$1 to \$9 per watt. And this  
14 particular program has been extended to 2007.

15 There's also a pilot net metering  
16 program in place for, for this sector. It's  
17 limited to new dairy plants, dairy farms, as far  
18 as I'm aware, and there are limits on the size of  
19 those plants and the amount that will, will be net  
20 metered from the different investor owned  
21 utilities.

22 There's a, a new bill that's out there  
23 that would extend this program and take away some  
24 of the limits for each of the utilities, and it  
25 would increase the, the size of the plants that

1 would be applicable, but right now the bill's  
2 prospects are unclear.

3 Now I'm going to go into the ICF  
4 analysis and tell you what the, the preliminary  
5 numbers show. And I say preliminary because there  
6 are a couple things that weren't looked at in this  
7 analysis. It's very comprehensive in terms of the  
8 number of, the types of measures that were looked  
9 at and, and looking at different size farms that  
10 it might apply to, but it hasn't looked at  
11 additional net metering policies and it hasn't  
12 looked at the cost of mitigating NOx emissions,  
13 which may be important.

14 This slide essentially shows the ICF  
15 baseline going forward for methane emissions, and  
16 it's not just from dairies but it includes other,  
17 other types of animal farms, as well.

18 These are the list of measures that were  
19 looked at by ICF in their study. You can see that  
20 they range from covering lagoons and generating  
21 electricity from that, to different types of  
22 digesters -- and I can't explain the differences,  
23 but if you have questions about that maybe Matt or  
24 Cynthia can -- and applied to different sized  
25 farms, based on the number of cows on a farm.

1           Some of the key assumptions. This  
2           assumes the full technical potential of these  
3           measures. There's, there are assumptions on the  
4           number, the growth in, in dairy cows. It shows a  
5           three percent in the 2004 to 2010 period and two  
6           percent from 2010 to 2020. It assumes the  
7           existing net metering pilot scenario, but that --  
8           but it assumes that that's extended to beyond the,  
9           the caps that are currently imposed under the, the  
10          current net metering authority.

11          It assumes that there's no federal  
12          production tax credit. The discount rate is four  
13          percent, and we don't assume any tax effects.  
14          And, at least in the numbers that I'm showing,  
15          although ICF did assume different scenarios in  
16          terms of discount rate and taxes in their study.  
17          And it includes a variety of the costs that, that  
18          would apply when you install a digester or one of  
19          the other technologies.

20          Some of the key results. I'll be  
21          showing you the results in terms of the cost, and  
22          also the potential reductions from each of the  
23          different measures. In total, this, the methane  
24          emission reductions from all the options came to  
25          almost six MMTCO2 in 2010, and just over six in



1       2020. The average cost is \$3.70 per, per ton.

2               Nearly half of those reductions can be  
3       achieved by the three measures that are  
4       essentially free, and an additional set of  
5       measures can be achieved at less than \$10 a ton.

6               This essentially shows the cost curve.  
7       As you see, the, the top three measures are less  
8       than zero dollars a ton. The next four are less  
9       than \$10 a ton, and it's only the last measure  
10      that costs more than that.

11              This slide is a little bit different  
12      from what's in your packets, but it shows how far  
13      these different measures can get you in terms of  
14      reductions from that emissions baseline. The  
15      baseline, in the top line shows -- is 6.64 in  
16      2010, 7.16 in 2020. All the free measures get you  
17      down to 3.86 in 2010 and just over four in 2020,  
18      which is a 42 percent reduction from that  
19      baseline. With all the measures that cost less  
20      than \$10 a ton, you get below 2MMTCO2 in both 2010  
21      and 2020, and that's even less than 1990 levels,  
22      which is over 75 percent reduction from the  
23      baseline.

24              So based on the preliminary results you  
25      can get pretty sizeable tons of emissions

1 reductions, looking at the full technical  
2 potential of these measures applied to farms.

3 Of course, as I mentioned earlier, it  
4 doesn't include the cost of NOx control, which  
5 potentially is an important cost and will need to  
6 be built into this. And also, it doesn't include  
7 a more favorable net metering policy, which could  
8 also be a possibility.

9 This is just the picture of, of the cost  
10 curve that was shown in the last graph.

11 MR. CAVANAGH: Now, Stacey, before you  
12 into this slide, to, to free up what will  
13 otherwise be a likely diverting discussion, I  
14 would like, I will happily stipulate that I do not  
15 believe that the various statements on the next  
16 few slides about the intransigence and alleged  
17 conflict of interest of the utilities, whatever  
18 there merits may have been historically and  
19 nationally, have any applicability to California  
20 whatsoever. And so maybe we could just sort of  
21 bounce past those and stay on the, stay focused on  
22 the measures and the costs.

23 And, and I'll just, I'm not trying to  
24 preempt otherwise diverting and, and compelling  
25 addresses by various of my colleagues whose

1 accuracy I herewith acknowledge.

2 MS. DAVIS: Do I hear a second?

3 (Laughter.)

4 MR. CAVANAGH: Yeah. So I encourage you  
5 to go quickly through the next couple of slides  
6 and stay on, stay focused on the measures and the  
7 costs.

8 MS. DAVIS: I'll take that to heart.  
9 Just very quickly, there, there has been some  
10 opposition to that metering historically, and  
11 that's potentially a barrier. There are some  
12 difficulties potentially with interconnection.  
13 There are some difficulties with interconnection,  
14 like solar and other types of renewables do get  
15 more favorable interconnection treatment than do  
16 digesters, at this point. You know, there might  
17 be a way to extend that same treatment to them  
18 and, and to reduce some of the other transaction  
19 costs that, that apply here.

20 NOx emissions may also pose a barrier.  
21 There are obviously in California a lot of non-  
22 attainment areas, and, and it looks like there  
23 might be some efforts to crank down on digesters,  
24 in particular. There's, the San Joaquin Valley  
25 Air Pollution Control District is considering a

1 rule that would require dairies to meet a 50 ppm  
2 NOx emission standard for waste gas engines in  
3 2007, and this is significantly below the  
4 uncontrolled level that's 200 to 300 ppm, so you  
5 would need some kind of NOx control technology,  
6 whether it's a lean burn engine or whether it's an  
7 SCR, or, or something, to reduce these emissions,  
8 and these costs have not been built into the ICF  
9 numbers yet. And while it's too early to say what  
10 the effect is, it could have an impact on, on the  
11 results that were shown earlier.

12 Now I'm going to go through a number of  
13 different policy, policies and measures that might  
14 be used to encourage penetration of manure  
15 digesters and some of the other measures that ICF  
16 looked at.

17 One would be extension of the renewable  
18 energy credit measure to manure digesters. They  
19 currently get credit for -- and they're, they're  
20 included in the definition of the RPS, but not,  
21 not the additional benefits from moving manure  
22 from open to closed areas, from an open to a  
23 closed lagoon. So there could be a way to extend  
24 that a little bit more to, to give them more  
25 credit for, for the RECs.

1           Another approach might be to develop a  
2       more standardized type of digester system so it  
3       would be easier for third parties to, to work with  
4       farms to implement it. Right now farms, you know,  
5       may not know a whole lot about the technology,  
6       there might be a lot of uncertainty about the  
7       risks and costs. If it, if you had a more  
8       standardized technology and standardized approach,  
9       you know, maybe it could be done more seamlessly.

10           Another issue is -- but there is a  
11       potential for gaming of the baseline. And so it  
12       would make sense to have some kind of a mandatory  
13       reporting or mandatory registry element to -- for,  
14       for this sector, so that in the event that you  
15       have, you're applying your manure to land instead  
16       of in a lagoon, in the business as usual scenario  
17       this would allow you to make sure that people  
18       don't take that land applied manure and put it  
19       into a lagoon, which would actually increase the  
20       methane emissions before you reduce them. It  
21       would avoid that kind of scenario. I don't know  
22       to what extent that would really happen, but it's  
23       been raised to us as a possibility, so I'm  
24       mentioning it to you.

25           Voluntary approaches are a possibility.

1       There is an Ag STAR program at the federal level.  
2       I don't know how strong the participation is in  
3       this program currently in California, but without  
4       addressing some of the underlying barriers and  
5       cost issues, it's, it's not easy to see how you'd  
6       get a substantial increase in participation  
7       through voluntary programs.

8               Another thing is to look at enhancing or  
9       extending some of the existing incentive programs.  
10      One way to do this is to focus on the SCR costs  
11      and think about how you might mitigate those costs  
12      through incentives. But even with the incentive  
13      approaches that have already been tried, you  
14      didn't have huge participation. You did get some  
15      participation and, you know, it's, it's a  
16      possibility. It obviously depends on how far you  
17      want to go with, with encouraging manure digester  
18      technology in the sector. If it's very cost  
19      effective, as the initial results suggest it might  
20      be, you know, you might want to look at this  
21      further. If it's, if it's not, maybe it's a part  
22      of an overall solution.

23             Technology requirements. You could just  
24      decide to mandate that these technologies be  
25      applied to the dairy industry. Obviously this

1 would be the highest cost option. You might be  
2 able to segregate that based on the size of the  
3 farm, et cetera. You know, it has less  
4 flexibility than some of the other approaches.  
5 You could do it based on a benchmarking scenario  
6 where you would require a particular rate.

7           You know, this could be made to be  
8 fairly flexible, depending on whether you allow  
9 trading within the sector to meet the  
10 benchmarking, and you could, in fact, design a  
11 benchmarking program that would link up to a  
12 broader trading program, although it wouldn't be  
13 as easy as doing it with a pure cap and trade  
14 program. But benchmarking would provide more  
15 flexibility than a straight technology based  
16 approach.

17           And both of these approaches would  
18 ensure broad based participation, presumably, and  
19 emissions reductions from across the sector.  
20 Either of these approaches, in the absence of an  
21 absolute cap, however, would potentially result in  
22 increases in emissions as production grows, of  
23 course, depending on how you set the benchmark.  
24 The cost also would depend on the level of the  
25 benchmarks, but, but given the same overall target

1       you're more likely to get a lower cost program if  
2       you do cap and trade to the degree that there is  
3       flexibility and compliance than if there isn't.

4               Emissions cap and trade is the last  
5       solution. It sets an overall cap based on CO2  
6       emissions equivalent from farms. You know, this  
7       again could be set different ways. You could even  
8       set a cap that would, you know, allow growth or  
9       allow some degree of over-compliance in selling  
10      back to the market. And, and this avoids the  
11      problem of increase in emissions under growth of  
12      dairy farms.

13             There are a variety of compliance  
14      options that could be used to meet a cap and trade  
15      program. You know, it's the same set of options  
16      that you'd be using to meet a benchmark, as in the  
17      previous slide, including buying allowances  
18      potentially, and the degree of flexibility will  
19      affect the, the overall cost. And emissions  
20      trading, if you do a straight cap and trade  
21      program, is the best way to link to the other  
22      sectors. But, as I mentioned, benchmarking can  
23      also be done.

24             So, conclusions. Based on the  
25      preliminary results, there appear to be a lot of



1 cost effective reductions, under zero dollars a  
2 ton and even -- and under \$10 a ton that get you  
3 below 1990 levels for this sector. Of course,  
4 additional study is needed to look at the effects  
5 of SCR and other NOx control requirements, and  
6 also the effects of a more favorable net metering  
7 program. Improved interconnection rules would  
8 also be recommended. Mandatory reporting.

9 And, and in terms of the types of  
10 approaches, there are a variety of ways you can do  
11 it, ranging from voluntary to cap and trade,  
12 depending on the reductions that you think you  
13 want from this sector, based on, you know, all the  
14 different sector cost curves and the overall  
15 target we're trying to meet.

16 Next steps. They mention that  
17 additional analysis is needed. And some  
18 questions. Is a more favorable net metering  
19 policy viable for the state, and, and which policy  
20 options might be of interest to folks.

21 MS. BROWN: Are there questions for  
22 Stacey? Yes.

23 MR. ADLER: Just briefly, and this is  
24 also probably more in the way of a comment. On  
25 the REC point, the suggestion that you expand the

1 definition of a renewable energy certificate, I  
2 think you'd have to be cautious with that. When  
3 the CPUC set out its REC certificate definition we  
4 explicitly excluded things like fuel use benefits  
5 because the REC is meant to be fungible. If you  
6 get a REC from one renewable technology it should  
7 equate to another. So if you include fuel use  
8 methane issues within the REC, you'll actually  
9 subsume that benefit and it will disappear, and  
10 you will eliminate the possibility of getting more  
11 revenue to methane bio-gas digesters if you put it  
12 in a REC.

13 That's not to say you shouldn't have a  
14 separate credit mechanism for that benefit, but  
15 calling it a REC will, I think, have the opposite  
16 effect of, of what you're seeking.

17 MR. CAVANAGH: Dan, I, I don't  
18 understand. Say it a little -- why, why will it  
19 destroy the value?

20 MR. ADLER: Because you need to -- bio-  
21 gas, perhaps, facilities, they have a benefit that  
22 comes before the electricity is generated. They  
23 take this mass, this substance out of the air and  
24 store it and keep the methane from, from  
25 disappearing. That's unique to renewable

1 technologies. The REC is, at least so far, meant  
2 to represent the avoided emissions and  
3 characteristics of the system power, or the fossil  
4 unit that you're, you're displacing. All  
5 renewables will do that. Bio-gas will do that,  
6 but bio-gas also has the benefit of taking methane  
7 out of the system. So you don't want to have that  
8 disappear by calling it a, a part of the REC.

9 MS. PULLING: It would have to be like a  
10 REC plus, almost, you've got REC plus an  
11 additional benefit.

12 MR. ADLER: Right. That typically is  
13 one way we've talked about it. Somebody take  
14 this, please take this manure off of my farm and  
15 I'll pay you some amount to, for that benefit.

16 MS. BROWN: Other questions or comments?  
17 If not, I'd like to call on Cynthia Cory from the  
18 Farm Bureau. She has a brief presentation.

19 CHAIRPERSON BOYD: While Cynthia is  
20 coming up, let me just say that in the process of  
21 doing the Integrated Energy Policy Report update  
22 for 2005, a lot of these issues with regard to  
23 metering, interconnection, and what have you, are  
24 being addressed, and, and I'm hoping that with  
25 some of the material that's developed in this

1 debate can also aid those people in our  
2 organization who are dealing with this. I mean,  
3 the, the last discussion about RECs and  
4 renewables, I, I remember when we first started  
5 that debate more than a year ago internally, I  
6 just injected that when we start talking about  
7 global climate change that, that it's going to  
8 really complicate that discussion. And bingo,  
9 it's, it's, now it's coming to the table, and we  
10 just have to push on and solve them.

11 Cynthia.

12 MS. CORY: Good morning. I know we're  
13 running really late, and in most cases in my life  
14 I have about five seconds to make a point in front  
15 of a legislator or an agency, so I'm pretty good  
16 at getting to the, you know, bottom line, so I'm  
17 going to do that. But I do want you to know I  
18 spent Saturday, when I was in the beautiful wine  
19 country putting together a power point that I'm  
20 not going to show you today, and I'm, and the  
21 dairy industry owes me big time for that. I  
22 already let them know.

23 But what I saw in January when we had  
24 our meeting, and I saw that, you know, cement,  
25 petroleum, and methane digesters were where we

1       were going for our silver bullets, I ran out of  
2       the meeting at lunch and called Western United and  
3       said holy cow -- no pun intended -- and if you  
4       know me, you know I didn't say holy cow. I just  
5       said I, yikes, you guys, I need help big time,  
6       because I am not a methane digester expert.

7               But I have learned a lot more and I bet  
8       I know more than anybody at this table about  
9       methane digesters. But what --

10              CHAIRPERSON BOYD: I, I challenge you.

11              MS. CORY: Well, let me take, let me  
12       take that back.

13              (Laughter.)

14              MS. CORY: I don't know how much you  
15       know about manure or not, Jim.

16              CHAIRPERSON BOYD: I've been wading  
17       through it for 40 years.

18              (Laughter.)

19              MS. CORY: But what I want to do is just  
20       make a couple of -- get back to my -- and I will  
21       pass out my power point, I think I've got enough  
22       copies for everybody. I'm going to do it later,  
23       though, I don't even want to take the time to do  
24       that. I'm just going to get down to the bottom  
25       side, which is the next steps. And it's just

1 something that we'll have as a committee, we can  
2 look at it later. You can discuss with me later,  
3 and, but it's something that if, if we're wanting,  
4 like, like Abby had said, I'm trying to get to the  
5 pink stuff.

6 The first, the first one I would bring  
7 up is -- oh, and what I want to say is I'm going  
8 to go through these points really quick, and then  
9 I want to invite two people that I've asked to be  
10 here with me, that helped me a lot on my  
11 subcommittee, to possibly make a few comments.  
12 Mike Marsh is the president of Western United  
13 Dairymen, and George Simons, who runs the dairy  
14 production program at CEC.

15 What, what I'd like to throw out here,  
16 and I thought it was interesting that Ralph had  
17 said he didn't like some of the slides, because I  
18 do. My, my basic understanding of this is that  
19 there is a little bit of a problem with net  
20 metering, and if it's not fixed this isn't going  
21 to work. So there is legislation, AB 728,  
22 Negrete-McLeod, that's out there. I have copies  
23 enough for our committee, and I know that asking  
24 this committee to take a position as a committee  
25 is, you know, we're taking after God, and too long

1 in the legislative world.

2 So what I'd like to do is ask especially  
3 the utilities and the environmental community  
4 representatives to possibly let me know if they  
5 could support that legislation. And if they  
6 can't, just let me know why and maybe we can work  
7 at, you know, making it work, because I would ask  
8 George and Mike to talk about it more and, and  
9 they know a lot more about it than I do. But I  
10 see that as, you know, this isn't going to work  
11 unless we fix net, net metering. This is the  
12 vehicle to do it, so if we're going to put our  
13 money where our mouth is, let's, let's use this  
14 vehicle to do that. Because it's, like I said,  
15 it's not going to work unless we're getting fair  
16 prices for the electricity that we're generating  
17 back to the grid, taking into consideration that  
18 you're going to accept it once it goes there.

19 We're going to have to figure out all  
20 the costs, and I know that they've made a pretty  
21 good attempt, but I think there's probably some  
22 things that were left out. My group is going to  
23 get together again with the Center for Air Policy  
24 folks after this. We were not able to do that  
25 before because I was just, everything I could just

1 to get together with our group and figure out how  
2 to react to the January stuff.

3 So there's things like if you're going  
4 to tell people that they need a digester they're  
5 going to have to build a new lagoon. And in doing  
6 that, you might have to do a minor modification  
7 permit, as far as air -- I mean, things like that.  
8 We really need to think about all of that, and I'm  
9 not, just not sure absolutely that we've got all  
10 that considered in the cost.

11 And we also need to do, as you'll see  
12 when I, the presentation I give you, there's some  
13 things we really need to think about about  
14 environmental impacts and research. We don't want  
15 to fix one problem and create another. The NOx  
16 issues have been brought up. There is not an  
17 engine out there that's going to work yet. And  
18 even if they could create it, who knows if it  
19 would meet the requirements that are being put in  
20 place in the, in the San Joaquin Valley. Things  
21 like what do you do with the salts. You don't  
22 want to create a water problem because there is a  
23 salt issue with, with the digester system.

24 And last, but not least, I would, I know  
25 that there's no money in our budget for doing



1       this, but I would like to encourage, and maybe we  
2       can include this in our report, support for the  
3       dairy production program, and whatever we could do  
4       to, to put that forward, because it has been a  
5       very good model for working closely with the  
6       dairies and trying to figure out all the, the  
7       pluses and minuses. One thing you should know.  
8       Before SB 5X, before the dairy production program  
9       was put in place, there was one methane digester  
10      in the state, which did it on its own. So  
11      after --

12               MR. CAVANAGH: And now?

13               MS. CORY: And now we have 14, because  
14      we had, we had 50 percent cost sharing. But I  
15      think that's really important to kind of -- well,  
16      if it was so great, why wasn't it happening. We  
17      were able to get 14 with 50 percent cost sharing,  
18      but if we don't have that, which we don't have it  
19      now, mandating these guys, especially if there's  
20      no, if they're not getting paid for the  
21      electricity, just want to make really clear, we've  
22      got some things to fix.

23               And Mike, if you could possibly say a  
24      few words, if you'd like, and George, I invite you  
25      just to --

1 MR. MARSH: Thank you, Cynthia.

2 And very briefly, as the representative  
3 of the dairy industry, we are very supportive of  
4 renewable energy and the dairy power production  
5 program with the Energy Commission. It has shown  
6 us some opportunity, but it has also highlighted a  
7 number of issues that we didn't know when we were  
8 getting into renewable energy exactly that they  
9 were going to be there.

10 I do have a couple of comments about the  
11 analysis that's been done. The growth rate of the  
12 dairy industry in the state of California that was  
13 used is unfortunately incorrect. We have had  
14 relatively strong growth at, at about five percent  
15 during the nineties, but unfortunately, because of  
16 worker's compensation regulation associated with  
17 SB 700, and implementation of SB 700, dairies are  
18 leaving the state of California. And they're also  
19 not only taking the cows but they're also taking  
20 the jobs.

21 So consequently, of course, the growth  
22 rate in the dairy industry in California is going  
23 to likely slow and, and probably at some point in  
24 the near term through the next five to ten years,  
25 actually decline. And instead, the dairies and

1 the, the jobs and, and -- are going to go to  
2 Nevada and Arizona and Washington, Oregon, Idaho,  
3 someplace else in the Western United States.

4 Emissions estimates that were also used,  
5 I would, I would question. At this time we're,  
6 we've been working with the University of  
7 California at Davis, Fresno State University,  
8 Texas A&M University, to quantify exactly what  
9 emissions are that are coming from the farms. And  
10 interestingly, what we're finding is that they're  
11 about a quarter of the emissions estimate that has  
12 been used by the Air Resources Board based on,  
13 upon a 1938 experiment that was done by a couple  
14 of folks at one time.

15 One of the things that Cynthia mentioned  
16 with regard to net metering, and there a lot of  
17 problems, a host of problems with the AB 2228,  
18 which we had to run as a piece of legislation as,  
19 as an industry after we started working with the  
20 Dairy Power Production Program, but one of them is  
21 that there is no aggregation of the meters. For  
22 instance, if you've got a dairy operation  
23 presently in, in, say, we got one in Lodi, that  
24 has one of these projects in place, he's got about  
25 40 different meters on his dairy. Well, he's only

1       able to use that meter on one of the meters going  
2       in and out of the dairy.

3               Now, that's a real problem, because if  
4       he's running his irrigation pumps, getting water  
5       out to his vineyards and, and also on to his  
6       alfalfa and, and his other crops, and moving water  
7       around the place, he doesn't get any credit, and  
8       instead that power just goes back into the grid  
9       and he gets no compensation for that either.

10              The average cost on the projects that  
11       we've funded through the Dairy Power Production  
12       Program for new installations was about \$1.2  
13       million per farm. Now, that's a, that equates on  
14       a thousand cow dairy to about \$1200 additional  
15       cost per head, per animal unit that you've got on,  
16       on the place, so I think Cynthia's exactly right  
17       when we're talking about mandates versus markets.  
18       If we're able to develop a market for the energy,  
19       we can go ahead and, and, as an industry, place  
20       more of these methane digesters on, online.  
21       Development of that market for the power is going  
22       to be very important.

23              Interconnection issues. One, one of our  
24       projects down in Tulare County. The, the dairyman  
25       has, is just pulling his hair out because he's

1       actually doing a refurbishment of an existing  
2       digester on his property. He's been in Southern  
3       California Edison's district, he has had seven  
4       different engineers that he's submitted his  
5       interconnection and his Rule 21 compliance to, and  
6       each one of them gets changed as soon as they give  
7       approval to the project. So it's been a disaster  
8       for him. Actually, I, to tell you the truth, I  
9       think he's, he's actually generating power and  
10      just keeping it on the farm as much as he can,  
11      rather than have to deal with going back to the  
12      utility and saying please let me interconnect once  
13      again. But that's been a real problem.

14               Recently we've also ran into opposition  
15      from environmental groups. You might have seen  
16      the Sierra Club has come out opposed to any  
17      methane digesters in the state of California,  
18      because apparently the Sierra Club is asserting  
19      that dairies don't belong in California as, as  
20      does much of agriculture not belong in the state.

21               We also ran into a, an issue with the  
22      San Joaquin Valley Air Pollution Control District,  
23      and it's almost like the, the two agencies within  
24      CalePA, and I'm glad somebody from CalePA is here  
25      today, don't talk to one another very well,

1       because the San Joaquin Valley Air Pollution  
2       Control District, in their BACT document relative  
3       to SB 700, came out with a mandate for methane  
4       digesters on dairies. However, the State Water  
5       Resources Control Board, the regional board in  
6       Fresno, has indicated they will not permit a dairy  
7       with a digester in the future because they don't  
8       know what change you might have to the nutrients  
9       that are coming out of the, out of the operation.

10               So maybe at EPA, if we have an  
11       agricultural policy hopefully coming from the  
12       governor very soon, and also from CalEPA, we can  
13       get the two entities talking with one another.  
14       This is a great opportunity, we believe, as the  
15       dairy industry, for renewable energy and to reduce  
16       our reliance on foreign sources of energy. But it  
17       will fail and it will die unless we, unless we  
18       have the legislative tools available to us to see  
19       it promoted.

20               George, do you have anything?

21               MR. SIMONS: Thanks. I just want to  
22       provide some information on the Dairy Power  
23       Production Program in context to some of the  
24       information from the Center for Clean Air Policy.

25               We did only have 14 awards made under

1 the Dairy Power Production Program. You have to  
2 put that in context of what was happening in the  
3 1980s, when the Commission rolled out essentially  
4 the same type of a, a program under the bio-gas  
5 demonstration program. We were providing grants  
6 at that point in time to put in bio-gas systems.  
7 The dairy industry didn't have a lot of experience  
8 with bio-gas systems. They decided to go ahead  
9 and take us up on some grants.

10 At that point in time, what was  
11 happening in the ag sector from an electricity  
12 standpoint is farmers were facing 14 different  
13 types of rates that they could get involved in, in  
14 terms of setting up a self-generation type  
15 project. So there was a lot of disincentives at  
16 that time from the IOUs, in particular, trying to  
17 keep farmers from putting in self-generation type  
18 projects.

19 In addition, there wasn't a lot of  
20 infrastructure for bio-gas systems, and so what we  
21 found is that the dairy industry, who had decided  
22 to go ahead and take a risk, try a new system, was  
23 left all of a sudden with embedded costs that they  
24 wore because the grants didn't cover nearly enough  
25 of the systems. They were left with, all of a

1 sudden, changing rate structures on their bills,  
2 oftentimes facing severe penalties for any sort of  
3 capacity that they had to receive from the utility  
4 when the bio-gas system wasn't down. And then all  
5 of a sudden, a loss of infrastructure for bio-gas  
6 systems where vendors who were essentially new to  
7 this dropped by the wayside, and so the dairies  
8 were left to go ahead and fend for themselves.

9           So there's been a lot of reluctance by  
10 the dairy industry to again look at bio-digesters.  
11 So when we set up the Dairy Power Production  
12 Program, one of the things we said is we want to  
13 only go to vendors who have a proven track record.  
14 We don't want to leave the industry stranded  
15 again. And the dairy industry, what we've gotten  
16 in these 14 projects, which, by the way, is now  
17 down to 12 projects because of some of the  
18 concerns that two of the dairies had about the  
19 interconnect issues and the permitting issues, and  
20 they said sorry, guys, you know, we would love to  
21 do this but we are so frightened by what's going  
22 on that we're just going to, we will back out of  
23 our applications.

24           But anyway, so we have these 12  
25 participants who are really visionary within the



1 dairy industry, and they are going to be the test  
2 case for can we put in these systems in  
3 California. And I've always viewed this as this  
4 is a fantastic opportunity for California. We  
5 have, you know, in excess of 1600 to 2,000 dairies  
6 in the state and 1.2 million dairy cows. By and  
7 far, California is the leading dairy state in, in  
8 the nation. So we have a great opportunity to get  
9 methane gas reductions and other benefits.

10           You know, the dairy industry understands  
11 that they face all sorts of perception problems  
12 from communities. We see encroachment of housing  
13 now into dairy operations. The Chino Basin's a  
14 great example. So the dairy industry's trying  
15 their best, I, I believe, having dealt with them  
16 now for several years, to really move forward in a  
17 very responsible fashion. They know that they've  
18 got to control odor. They know they are viewed as  
19 a potential, a potential source of vector  
20 transmission problems. So they know they have to  
21 do something. And what we view the Dairy Power  
22 Production Program as is a means to go ahead and  
23 figure out what would be the cost of doing  
24 something, and what's the most reasonable  
25 approach.

1                   And so when I look at the, the Center's  
2       presentation, where they say that there is zero  
3       cost for some of these systems, I'm actually  
4       confused. And I talked to Matt Ogonowski last  
5       night. Cynthia Cory and I have talked, and we are  
6       going to continue to look at these numbers because  
7       I believe what we want to really do is we do want  
8       to try to get some methane gas reductions from  
9       these systems. I personally think mandating these  
10      things without having additional information is a  
11      bad idea. One of the things that we're going to  
12      be doing at the end of the Dairy Power Production  
13      Program, in terms of having all the systems  
14      installed, is really looking at the cost.

15                  There isn't a one size fits all cost.  
16      They are very custom to what's the size of the  
17      dairy, what type of reactor technology are they  
18      using. What kind of prime mover are they going to  
19      use. So we really need to address those costs.  
20      In the program I manage under the, the PIER area,  
21      we're putting money into that to go ahead and find  
22      out what are the actual costs. We're also looking  
23      at different prime mover technologies. Cynthia  
24      mentioned that there isn't a, an engine right now  
25      that will produce the NOx levels required by the

1 CARB 2007 standards, which, by the way, are not 50  
2 parts per million. They're actually substantially  
3 lower than that. And in fact, if you look through  
4 the district, the air pollution control district  
5 regulations right now, 50 parts per million is  
6 what is required for recent engines farm and waste  
7 gas. Okay.

8 So, the, the BACT requirement's going to  
9 be substantially lower than 50 parts per million.  
10 There aren't machines out there to do that right  
11 now. We are researching, we're working with a  
12 number of different companies, including Ingersol  
13 Rand, to come up with lean pre-burn engines, or  
14 some other configuration, that can, can get down  
15 to low NOx emission rates. We're not there yet.

16 I guess the last point that I'd really  
17 like to make is that again, as we move out  
18 towards getting more of these systems installed in  
19 California, an incentive approach I think is going  
20 to be a very viable way to try to get methane gas  
21 reductions. If we start mandating facilities, I'm  
22 concerned that what we'll do is we'll have,  
23 especially if an engine isn't there that operates,  
24 we'll have dairies put in some sort of a covered  
25 lagoon. Once you put in a covered lagoon you have

1 to collect the methane, because otherwise you'd  
2 have a real problem on your hands. And probably  
3 the least cost option might be to flare it.

4 Well, we've automatically created a  
5 problem because NOx emissions from flares are  
6 going to be high. Okay. So instead of -- we may  
7 have resolved a methane problem, but we've created  
8 a NOx problem. Then, to further follow that down,  
9 the NOx emissions between a recip and a flare are  
10 not that different. And so what we're really  
11 doing if we mandate systems, if we're not careful  
12 we're going to create a NOx problem that in its,  
13 in its absolute, really isn't any different  
14 between flares and recip engines.

15 And yet what we're doing is we're saying  
16 we want to get methane reductions, we're going to  
17 not allow recip engines, so we're going to have  
18 people flare gas to simply avoid the cost, and  
19 we're going to have the same NOx impact. So I'm  
20 very concerned about that.

21 I think, again, we really want to try to  
22 adopt an incentive approach that gets the industry  
23 to embrace this, because again, I think there are  
24 multiple benefits for the industry.

25 MR. MARGOLIS: What sort of incentives

1 are you referring to?

2 MR. SIMONS: Under AB 728, net metering  
3 would be a great incentive if the dairies are  
4 allowed to get full value for their electricity.  
5 Right now, under AB 2228, they don't get any sort  
6 of value for electricity that they put into the  
7 grid. In addition, if, if you look at larger size  
8 dairies, Cottonwood Dairy, Gallo, is a great  
9 example. Very large facility which also has a  
10 cheese whey processing facility. Great  
11 application for what we call combined heat and  
12 power.

13 Under a net metering provision, those  
14 guys will have a great economic perspective if we  
15 can come up with, again, a prime mover that meets  
16 regulatory requirements, because not only do they  
17 get the offset electricity value for, for any  
18 electricity they would consume onsite, but also  
19 for any heat that they use. So those are great  
20 applications. 728 is that kind of an incentive.  
21 And again, some sort of an incentive program where  
22 we don't mandate NOx control immediately, but we  
23 look at a phase-in program.

24 MR. CAVANAGH: You -- I, I don't know  
25 what the Sierra Club's position is. NRDC

1       certainly doesn't oppose digesters. I appreciate  
2       the review, very thorough review we've had of  
3       problems and obstacles and issues.

4               The obvious question, though, if we move  
5       toward a cap on greenhouse gas emissions for  
6       California, anybody installing -- I mean, it  
7       wouldn't be a mandate, which all of you have been  
8       objecting to, to the installation of digesters,  
9       but it would create significant additional  
10      economic value for any installation of a digester.  
11      Is this potentially an additional reason to look  
12      at a cap approach to give the additional economic  
13      value back to the farms that are delivering the  
14      greenhouse gas reductions to the system?

15             MS. CORY: Mike, do you want to answer  
16      that? I just feel uncomfortable answering for the  
17      dairy industry.

18             MR. MARSH: Sure. I'm not sure that we  
19      know enough about it in order to really run the  
20      numbers. I've got an economist on staff that I'd  
21      be happy to, if we, if we look at it --

22             MR. CAVANAGH: Yeah. Is it, I assume --  
23      it just seems to me, from what you said, it would  
24      be heading in the right direction. You've all  
25      called for recognizing the value of this and

1 giving some economic benefit back to the people  
2 who are creating it.

3 MR. MARSH: Right.

4 MR. CAVANAGH: I just hope we can look  
5 at that as one way of doing it.

6 MS. CORY: Oh, absolutely. I mean, when  
7 you see the power point, we, we all agreed, hey,  
8 there, there's instances when this is a great  
9 thing and it can provide great incentives to dairy  
10 producers, but we've just got to make sure and not  
11 throw something down everybody's throat this is a  
12 one size fits all. And, and, you know, my  
13 reaction --

14 MR. CAVANAGH: Of course, a cap -- a cap  
15 doesn't do that.

16 MS. CORY: Okay.

17 MR. CAVANAGH: It gives to you the  
18 question of how you respond to an economic signal.

19 MS. CORY: Right. And I think, like  
20 Mike said, I think the dairy industry's very  
21 willing to look at anything as long as it pencils  
22 out that if these guys put this huge investment,  
23 that it's not going to be a huge burden. And  
24 they're not going to turn around and get smacked  
25 for other environmental impacts of things we

1 didn't consider.

2 One last word, unless there's other  
3 questions. When I hand you out this, my power  
4 point, I just want to, I didn't recognize a typo  
5 this morning on my net metering. On the thing I  
6 care most about, I made a big boo-boo. What I'm,  
7 what I'm trying to say in that point is we're --  
8 the only way we can get fair and responsive net  
9 metering is if we, basically if we support AB 728.  
10 So I will look forward to hearing back from my  
11 environmental and my utility colleagues on the  
12 committee about how we can move forward or not on  
13 that. And if -- Michael.

14 MR. MEACHAM: Yeah. Actually, a couple  
15 questions, and maybe you can answer them all. I  
16 don't know. But the projects that are in place --  
17 assume they're in certain phases of being  
18 developed for operation -- you know, what's  
19 actually been the cost? Because it doesn't say  
20 about what that 50 percent contribution was, and  
21 I'm kind of interested in the cost.

22 MS. CORY: Well, what I, what I put in  
23 my power, my presentation with the estimated  
24 capital cost were from a quarter of a million to  
25 4.6 million, depending on the size of the, of the



1 project.

2 MR. MEACHAM: And do we know about the,  
3 the 14 additional facilities, about what  
4 percentage of the total production statewide,  
5 because I don't know the range of sizes of the 14  
6 facilities.

7 MS. CORY: They --

8 MR. MEACHAM: How much have we captured?

9 MS. CORY: Yeah, just a drop in the  
10 bucket.

11 MR. MEACHAM: Okay. And then lastly, it  
12 was just we do a, a lot of flaring and a lot of  
13 methane recovery in the state already in the --  
14 landfills, and I was just wondering if, you know,  
15 you're working with those agencies as well as the  
16 suppliers, because it seems like that's a pretty,  
17 you know, comparable technology that we've already  
18 developed and, and already has a history of  
19 operation. I don't know where they are in terms  
20 of the, you know, the requirements of the 50  
21 parts, but that's out there, and it's, you know,  
22 been used for 20-some years now.

23 MS. CORY: Well, what we commit to do  
24 is, like I said, work closer with the, with the  
25 center and come back hopefully with our next

1 meeting with, so we won't have two presentations,  
2 we'll have something that we've been able to agree  
3 on and that maybe is something that can be  
4 included in the report. That's, that's my hope,  
5 anyway.

6 MR. HERTEL: Just a comment on that.  
7 There, there is a big difference between landfill  
8 gas recovery and methane digesters for dairies.  
9 This, the size differential is incredible. And  
10 the kinds of engines that can be used in methane  
11 recovery from landfills are, of course, turbines,  
12 and you can't do that -- well, doing that in small  
13 operations is quite expensive. And so that,  
14 that's just one aspect of the scale differential.

15 It illustrates, though, a general  
16 problem that when you try to go down to  
17 distributed kinds of sources, it gets more and  
18 more complicated to try to manage all that  
19 process. Nevertheless, since we were a supporter  
20 of the previous law after some of us were asked to  
21 take a harder look at it, we will again take a  
22 look at this bill and, and respond to your  
23 request, Cynthia.

24 MS. CORY: Thanks, Michael.

25 CHAIRPERSON BOYD: I want to make a

1 couple of comments, Cynthia. What we've talked  
2 about here to me is a fairly narrow piece of slice  
3 of the whole pie. I mean, we're talking about  
4 dairy power production, and I'm just hoping that  
5 maybe this group, but certainly other groups that  
6 were just formed, at least another group that  
7 we're just now forming in the state can look at  
8 this as dairy energy or agricultural energy  
9 production. I mean, what we've talked about here  
10 is digesters to electricity. And when we talk  
11 about methane, methane, methane, it's methane.

12 Methane is natural gas, and it can be,  
13 it can be used for other things. And other  
14 countries have other approaches that we probably  
15 need to look at. They collect this, they don't do  
16 individual farm digesters, they collect the  
17 materials and put them in a, in a much broader  
18 factory and make methane and put it in pipelines  
19 and feed the transportation sector, et cetera, et  
20 cetera.

21 So I think from a climate change  
22 perspective, you know, we want to look at the  
23 capture of methane, and not allow it into the  
24 atmosphere. But there are probably other  
25 approaches to it. Certainly electricity

1 production in a big dairy, you know, there may be  
2 some real -- make, make a lot of sense. And  
3 again, in the context of all that the Energy  
4 Commission is doing in its current study, they  
5 need to look, and will continue to look at net  
6 metering and, and the barriers to this issue.

7 But within the context of this group,  
8 and maybe another group that we're just now  
9 starting up, or, I'd like to say re-starting, the,  
10 the old bio-mass working group of the state is  
11 becoming the bio-energy working group where we get  
12 all the state agencies together, and maybe we can  
13 address the Water Board's issues vis-a-vis the Air  
14 Board's issues vis-a-vis the Energy Commission's  
15 issue, the Waste Board, Food and Ag, and what have  
16 you, in this arena of bio-energy and what can we  
17 do to stimulate that.

18 So there, you put, there are a lot of  
19 problems, obviously, on the table, and, and it'll  
20 be hard to dump them all on this group to resolve.  
21 So, but this group can certainly point at some of  
22 these other issues that need to be resolved, and  
23 poke fingers at some of the folks who ought to do  
24 just that.

25 So there's a lot, to me, I think there's

1 a lot of potential here. And I've been one to  
2 really want to see us deal with that. And if this  
3 becomes one of the forcing functions, one of the  
4 forums, one of the arenas where we put more  
5 pressure on solving that, more power to it. And,  
6 and there's a real forcing function here in terms  
7 of methane and its reactivity in climate change,  
8 it's, it's, what, ten times more significant  
9 than --

10 MS. PULLING: Twenty-one.

11 CHAIRPERSON BOYD: -- 2302. In any  
12 event, two points.

13 MS. CORY: And, and I appreciate that,  
14 Jim. Actually, George and Mike and I sit on a  
15 bio-mass collaborative that, you know, CEC  
16 coordinates through UC Davis, and we definitely  
17 think that's important stuff.

18 MS. BROWN: Next I'd like to call on  
19 Robert Parkhurst, who's the other co-chair of the  
20 industrial and ag subcommittee, for a few brief  
21 comments.

22 MR. PARKHURST: And I will keep these  
23 really brief.

24 CHAIRPERSON BOYD: Really, Robert, you  
25 don't have to talk about our happy cows.

1 (Laughter.)

2 MR. PARKHURST: Well, I realize right  
3 now that I am the, the thing that's keeping us  
4 between you and lunch, so I will be very brief.

5 We had an interesting challenge in the  
6 industry in the ag subcommittee because we're  
7 representing a broad array of different  
8 industries, cement, agriculture, petroleum, semi-  
9 conductors and forestry, just to name a few. But  
10 in the, the several conference calls that we've  
11 had we did come out with, with three very general  
12 recommendations that we felt would apply to, to  
13 most industries and, and the agriculture and  
14 forestry sector. And I think we've seen them come  
15 out today in a number of the presentations.

16 The first one is, is a relentless  
17 pursuit of energy efficiency, because as we see,  
18 as technology changes, the, the cheapest slot that  
19 we have is the one that we never, that we never  
20 consume. So that's something maybe that we all  
21 can look towards.

22 The second one, and it's been enlarged  
23 through the discussion of both the, the  
24 presentations on ag, on the methane digesters and  
25 cement, is removing barriers. Removing any type

1 of administrative or, or technical barriers to the  
2 extent possible to implement new technologies,  
3 things such as this net metering and, and the  
4 Caltrans using different types of cement. So  
5 where we can do that and encourage that, that's  
6 something that the, the subcommittee felt very  
7 strongly about.

8 And then the final thing is incentives  
9 for new technology. Along the line with, with  
10 what happened with bio-digesters back a number of  
11 years ago is that it was a, a new technology.  
12 There were some cost barriers to implement it.  
13 It's just lowering those barriers and bringing  
14 that type of technology in, and, and doing pilot  
15 projects and doing even larger implementation  
16 projects where possible.

17 And so those were the three things that  
18 came out of, out of the subcommittee discussions  
19 that we've had.

20 CHAIRPERSON BOYD: Comments, questions?

21 Well, we're really behind schedule, but  
22 hunger won't wait.

23 MR. CAVANAGH: My ten seconds, can I  
24 just -- Robert, do you expect you'll have a text  
25 for us to look at? Is that a --

1                   MR. PARKHURST: We, we have some input  
2                   that is in draft form that we're pretty close to  
3                   finalizing.

4                   MR. CAVANAGH: Right.

5                   MR. PARKHURST: So it's, it is very  
6                   general in its nature, but it's something that we  
7                   can send out to the committee shortly.

8                   MR. CAVANAGH: Thanks.

9                   CHAIRPERSON BOYD: Shall we move to  
10                  lunch?

11                  MS. BROWN: I would recommend that,  
12                  because our other option is to --

13                  CHAIRPERSON BOYD: We called it a  
14                  working lunch. I think we should probably take 30  
15                  minutes to sit here and eat lunch, and then get  
16                  back to the agenda.

17                  MS. BROWN: Yeah. And I might add  
18                  that --

19                  CHAIRPERSON BOYD: And try to make up  
20                  some of the time.

21                  MS. BROWN: -- thanks to our hosts  
22                  today, we have lunch available for the committee  
23                  members, and we're going to probably take about a  
24                  half an hour break, and --

25                  CHAIRPERSON BOYD: So, quarter of?



1 MS. BROWN: Quarter of 1:00. Start up  
2 again at 12:45.

3 (Thereupon, the lunch break  
4 was taken.)

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1                                   AFTERNOON SESSION

2                   CHAIRPERSON BOYD:  As we were breaking  
3                   up, perhaps you didn't hear a lot of us say we're  
4                   so far behind, we're just going to get started on  
5                   our working lunch, get your lunch, get back to the  
6                   table, and get back to the agenda.

7                   Bob Heald had something he wanted to  
8                   say, then we're going to move to the  
9                   transportation --

10                  MR. HEALD:  Well, just quickly, to put  
11                  some, some more quantitative information on this.  
12                  If you'll notice in your hand-out, the Integrated  
13                  Energy Policy Report, about midway through there  
14                  is a chart which shows the supply curve based on  
15                  price per ton of carbon for carbon sequestration  
16                  from the forests of California.  I'd just point  
17                  out to you that those tons are carbon, not carbon  
18                  dioxide, so if you multiply that by 3.66, you'll  
19                  get the relative quantitative estimate, and it's  
20                  quite substantial.  Over the next 20 years, you're  
21                  looking at on the order of two or 300 million tons  
22                  of carbon dioxide that could be sequestered, or  
23                  10, 20, 30 million tons per year, which is a  
24                  substantial portion of that 400 million tons that  
25                  we're talking about, in terms of emissions.  So

1       that's one point.

2               The flip side is that we currently, on  
3       average, are producing something, on the one  
4       estimate, on the order of 20-plus million tons of  
5       carbon dioxide per year from wildland fires.  
6       About half of that is potentially controllable.

7               So management of forests can, in one  
8       sense, be used to sequester additional carbon at a  
9       very high level relative to California's current  
10      emissions, in the near term. It's not simply a  
11      long-term solution, but in the next couple of  
12      decades. And we have the combined potential,  
13      highly influenced by policy, to either go negative  
14      in terms of reducing emissions from wildland  
15      fires, or to further exacerbate the problem  
16      because warming climates shifting places where  
17      vegetation types grow have the potential to  
18      greatly increase emissions from wildland fires, or  
19      we can reduce them.

20              So we have a real turning point, in  
21      terms of the forestry sector, that I want to make  
22      sure we keep in mind.

23              MR. CAVANAGH: Bob, this is so  
24      important. The conventional wisdom is that if you  
25      suppress the fires, over time what's going to

1       happen is it's going to balance out with really  
2       catastrophic big ones that are somewhat more  
3       widely spaced. Sounds like you don't think that's  
4       right.

5               MR. HEALD: Conventional wisdom in that  
6       sense is, is actually a pretty good science. Pure  
7       fire suppression, trying to prevent fires or put  
8       them out when they're small works; 95, 97, 98  
9       percent of fires are suppressed. But the total  
10      amount of acreage and the total amount of loss  
11      doesn't change much. You just have larger, less  
12      frequent fires. But management of forests to  
13      reduce the amount of material lost in fires is  
14      also possible.

15             MR. CAVANAGH: I see.

16             MR. HEALD: So that you may still have  
17      large fires, you may still have a few small fires,  
18      but the amount of carbon dioxide and the total  
19      amount can be reduced, some estimates are by ten  
20      percent, some estimates are by 50 percent. But  
21      still, that's on the order of tens of millions of  
22      tons per year of carbon dioxide.

23             MR. CAVANAGH: Just, the last dumb  
24      question. It sounds, though, like to do that you  
25      have less carbon to -- I mean, if you, if there's

1 less material in the forest to burn there's also  
2 less carbon being stored in the forest. So why  
3 isn't it just a --

4 MR. HEALD: Paradoxically, that's not  
5 necessarily true. If you think of forests as  
6 having tall canopies and then mid-canopies, under-  
7 story canopies, reducing the amount of material in  
8 the lower levels, the surface fuel and what we  
9 call the connection fuel, the latter fuel, that  
10 material is going to die and decompose in the next  
11 20 or 40 years anyway. So the question is, if you  
12 remove that, not removing the larger trees but  
13 removing smaller trees, you can actually process  
14 that material into energy and wood products, and  
15 as a consequence, when fires occur they're less  
16 intense, less large in scope, and that material is  
17 not consumed.

18 MR. CAVANAGH: Got it.

19 MR. MARK: This raises a question, I  
20 think, though, for the subcommittee and an  
21 exploration moving forward, perhaps, Ned, is, is  
22 to what extent some of these sequestration  
23 opportunities of management, opportunities in both  
24 the forest sector, but I would argue also the  
25 agricultural sectors, you know, can and, and

1       should be part of the mixture that's being  
2       evaluated.

3               MR. HEALD: Well, I think it's very  
4       important, because what we're looking at is the  
5       net carbon emissions. No one would argue that  
6       it's, it's, you know, you want to subtract. If  
7       you look at those pie charts, the projected number  
8       grows from 400 to 500 and some odd million metric  
9       tons over the next 20 years, but the, the stored  
10      amount, the sink amount, changes. It doesn't  
11      change, it sits fixed, because no one's factored  
12      in the capacity to change that sink amount.

13             And in terms of efficiency, we should  
14      certainly offer the, the people of California and  
15      the various industries the opportunity to reduce  
16      those net emissions by whatever's most efficient,  
17      whether -- and that's going to be some combination  
18      of reductions in actual emissions and increases in  
19      storage.

20             MR. MARK: It's my understanding, in  
21      fact, that the sinks, the trend in, in sinks in  
22      California over the last decade has actually been  
23      downwards. In other words, we've actually been  
24      losing opportunities to, to sink and store carbon  
25      in, in the state, which is at least a trend that's

1       worth sort of exploring and figuring out how to  
2       reverse.

3               MR. HELME:   And our intent, Jason, is to  
4       look at that.   We're, we're planning to look at  
5       the wind rock work and the stuff that Bob's  
6       talking about, yeah, that's part of the package,  
7       along with ag.   You know, we're also going to look  
8       at the ag soils.

9               MR. HERTEL:   Ned, do we have a, an  
10       efficiency in terms of cost per tons for  
11       sequestration and various types of, of forest  
12       growth, or ag products, or whatever we're talking  
13       about?   Because I think, at least from my  
14       perspective, I agree totally with Bob's statement  
15       that if the aim is net reduction in carbon  
16       emissions, certainly sequestration at the lowest  
17       possible cost per ton makes the greatest amount of  
18       sense.

19              CHAIRPERSON BOYD:   Guido, do we -- is  
20       three anything you would want to say on this, in  
21       terms of the work that, that the CEC has done for  
22       a long time on sequestration, terrestrial  
23       versus   --

24              MR. FRANCO:   My name is Guido Franco,  
25       I'm with the California Energy Commission.

1 CHAIRPERSON BOYD: Doesn't sound like  
2 it's on. Go to the front. There's a switch on  
3 top.

4 (Inaudible asides.)

5 MR. FRANCO: My name is Guido Franco.  
6 I'm with the California Energy Commission. We  
7 have been supporting the work done by Wincom  
8 International, and also we're members of the, of  
9 the carbon sequestration partnerships that DOE is  
10 funding around the nation. We do have carbon  
11 supply curves for carbon sequestration in --  
12 systems that have been generated by Winrock. We  
13 have the amount of carbon that will be sequestered  
14 by 2020, 2040, and beyond that.

15 We're going to, we're going to continue  
16 this work, making some refinements. For example,  
17 right now we are looking at the economical  
18 potential, but we haven't looked at some of the  
19 barriers that may impede some of the huge savings  
20 that seems to be possible, the sequestration  
21 amounts that could be accomplished through carbon  
22 sequestration in forest, in forest areas, in  
23 forested areas.

24 We also have some preliminary numbers  
25 with respect to carbon sequestration in geological



1        formations. I think they are, they are still in  
2        the review, but some of the, of the promising  
3        option is the use of, of enhanced use of CO2 for  
4        enhanced oil, natural gas recoveries. So the work  
5        that has been done by Winrock is already out in  
6        our website, the reports are out. The work on  
7        carbon sequestration in geological formations will  
8        be out in the next two or three months.

9                MR. HERTEL: What about the cost per  
10        ton?

11               MR. FRANCO: The costs per ton are  
12        relatively low, on the order of -- they have some  
13        numbers, but the -- in the average about \$10, \$20  
14        per ton.

15               MR. HERTEL: Here in California.

16               MR. FRANCO: Here in California, yes.

17               MS. DUXBURY: That's for the  
18        sequestration, not the carbon capture?

19               MR. FRANCO: That's for, yes, it's --

20               MS. DUXBURY: Oh, that's biological.

21               MR. FRANCO: Yeah, only for -- yes.

22               MR. HELME: One of the issues we'll be  
23        thinking about the temporary nature of some of the  
24        forestry stuff and, and trying to factor that in.  
25        And certainly in the international debate, they've

1        sort of set a different standard for dealing with  
2        this because, you know, eventually the trees die,  
3        they eventually come down, so you have to think  
4        about it a little differently than you do  
5        traditional energy-related reductions. But  
6        otherwise, we plan to look at the work they're  
7        doing and try to package it well for you guys.

8                MR. HEALD: Well, the, the trees  
9        eventually die, but they also get replaced. So  
10       ratcheting up the average storage level is  
11       something that obviously has limits, but it can be  
12       done in, in a matter of a few decades and then  
13       maintained over time. So individual trees die,  
14       but, but the average carbon storage per unit of  
15       land can be raised and maintained at a very high  
16       level. Plus, you also have to factor in, and we  
17       haven't done this modeling yet, that I know of.  
18       If we have increases in carbon dioxide and if we  
19       have increases in surface temperatures, we also  
20       have increases in plant growth rates and the  
21       corresponding potential for increases in carbon  
22       sequestration, or if that policy is not place,  
23       then corresponding increases in carbon emissions  
24       due to fire losses. It's going to either be  
25       stored or consumed.

1                   So if we have a policy that encourages  
2                   storage, we'll store more carbon. If we don't, we  
3                   will have a de facto policy which burns more up.

4                   MR. PARKHURST: But doesn't the, the  
5                   forest change dramatically when the temperature  
6                   rises? And is, what's the impact on, on the  
7                   sequestration at that point?

8                   MR. HEALD: It's a shifting system. If  
9                   you look at, for example, the mountain system in  
10                  California, the Sierra Nevada, the vegetation type  
11                  changes by elevation because of changes in  
12                  climate. Different precipitation levels.  
13                  Precipitation typically increases with elevation,  
14                  but different growth seasons -- increases in  
15                  carbon dioxide, increases in temperature raise the  
16                  bottom up, but also raises the top up. Probably,  
17                  as these reports indicate, the more important  
18                  issues are relative to snowpack and water storage.  
19                  But, but in terms of carbon sequestration, the  
20                  opportunities for carbon sequestration may  
21                  actually increase, increases in carbon dioxide and  
22                  temperature.

23                  MR. MARK: It's important to note the  
24                  Energy Commission is funding, through the PIER  
25                  program, some tremendous and certainly important

1 work for trying to project those types of  
2 vegetational shifts, as well as potential  
3 wildfires. And, and UCS is working with a team of  
4 climate scientists, as well, to explore the  
5 potential increases in wildfires on a more short-  
6 term basis. So I think there's going to be a lot  
7 more information over time, but being able to  
8 capture at least what, what's available today in  
9 terms of the current state of the science and the  
10 opportunities from --the economic opportunities  
11 for sequestration seems critical to the, to the  
12 work here. It's good to hear that it's going to  
13 be there.

14 MR. ZENDER: How large are the  
15 opportunities that you see for carbon  
16 sequestration in forests, compared to the  
17 uncertainties in emissions of CO2 due to changing  
18 climate and soil respiration, and the unknowns  
19 like how the soil carbon storage will change?

20 MR. HEALD: Sure. Well, that, that's  
21 kind of a set-up question, in the sense that if we  
22 don't know how the carbon emissions are going to  
23 change with climate change and we don't know the  
24 soil emissions, I couldn't hardly answer, you  
25 know, how those would compare. Regardless of what

1       those changes are, we do have rough estimates of  
2       the, the magnitude of sequestration that's  
3       possible. So I, I just toss that out as that,  
4       whether it's a permanent solution, a long-term  
5       solution, or a medium term solution, it may be all  
6       three, but even if it's only a solution that fills  
7       part of the problem over the next 20 to 50 years,  
8       that's still the gap that we're talking about in  
9       terms of turning around emissions due to  
10      technology changes, and so forth.

11               MR. CAVANAGH: Your bottom line was  
12      these are the total sequestration potential for  
13      California's forests was on the order of 40  
14      million tons of carbon dioxide?

15               MR. HEALD: No, the current projections  
16      are, again, based on price, is that over the next  
17      40 years it's on the order of something --  
18      hundreds of millions of tons.

19               MR. CAVANAGH: Hundreds of millions.

20               MR. HEALD: Okay?

21               MR. CAVANAGH: Yeah.

22               MR. HEALD: So over 40 years, it could  
23      be as much as, as 2,000 million tons, or two  
24      billion tons, at -- on price. So over the next 20  
25      years, the charts you have, and you can look in

1       this handout right here, we're looking at 100 to  
2       200 million tons of carbon, or three or four times  
3       that much, through 400 million tons of carbon  
4       dioxide if we want sequestration, over 20 years,  
5       depending on price.

6               MS. CORY: I'd like to make a quick  
7       point. One of the things that I, from Day One on  
8       this committee I was always interested in ag soils  
9       in California. And one of the things that I  
10      think we haven't looked at yet is like orchards  
11      and, you know. We have a half a million acres of  
12      almonds here, which are, you know, permanent  
13      crops, and where you can have a permanent, you  
14      know, you're not disturbing the soil. I've just  
15      come to learn a couple -- recently that, because  
16      of the San Joaquin County people they can't burn  
17      anymore, so we're doing a lot of more chipping  
18      and, and -- of our prunings.

19             Well, you can only put so much of the  
20      prunings in your orchard floor before, you know,  
21      you get a build-up. And with, with almonds the  
22      way you, you go in, you have to have them clean,  
23      you know, when you're going to pick them up. I'm  
24      not going to go into how you do it. But, anyway,  
25      you have a lot of stuff on the orchard floor. You

1 get really kind of down in your quality.

2           So these guys are starting to  
3 incorporate and having to add fertilizer to make  
4 the trimmings decompose so that we're not having a  
5 PM problem, so you have probably increasing your  
6 NOx and your PM by applying the, the fertilizer.  
7 You're increasing your PM from, you know, now I've  
8 disturbed the soil and I'm probably, you know,  
9 losing this carbon that was probably sitting there  
10 and being stored. So I just, it's just one of  
11 the, you know, examples where you think you're  
12 fixing one thing and you've done completely the  
13 opposite of probably what you wanted to do.

14           But I still maintain, and maybe I can  
15 work with you, Ned, to look at how we can focus a  
16 little bit more on California soils and not use  
17 the midwest models, because it really doesn't work  
18 here.

19           CHAIRPERSON BOYD: Okay. With that, I  
20 think we'd better move on to the transportation  
21 piece of our program. And Jan Schori wanted me to  
22 -- but we don't have our audience back, and  
23 believe me, I'll say it again later. Several  
24 people have requested, several members of the  
25 public have requested to speak, and they have

1 power point presentations they want to make.  
2 Somehow or another they're drifting up into the  
3 bowels of this organization to their IT shop, and  
4 breaching security. I forgot the name of your  
5 assistant, but --

6 MS. SCHORI: Pam Turner.

7 CHAIRPERSON BOYD: Pam.

8 MS. SCHORI: Stick your hand up.

9 CHAIRPERSON BOYD: Right here. If  
10 anybody has something they want put on the  
11 computer, please see her and she'll take care of  
12 it. You don't need to walk the halls.

13 MS. DUXBURY: Hey, Jim, just real  
14 quickly, on the sequestration. Maybe at our next  
15 meeting at some point we can talk a little bit  
16 about geological sequestration as well, because I  
17 think that there's some tremendous opportunities  
18 in the Central Valley for geological sequestration  
19 and what West Carb is doing, and actually Calpine  
20 is going to be partnering with DOE and West Carb  
21 on a project there for testing the capability to  
22 do geological sequestration. And I think the, the  
23 high end potential is huge. I think it's a, a  
24 little aggressively optimistic in terms of how  
25 much you can sequester, but it's probably worth us



1 looking at, perhaps, in, in July.

2 CHAIRPERSON BOYD: I was debating in my  
3 mind how much of that everybody would be  
4 interested in, versus how much of that the  
5 committee has got to get into, and we need to get  
6 more of that information for them.

7 MS. DUXBURY: Okay. Well, maybe even  
8 our subcommittee of the power sector, if that's  
9 something --

10 CHAIRPERSON BOYD: As we're all  
11 discovering, there are so many really fascinating  
12 topics that we want to hear on, hear about in  
13 these meetings, we're going to have to start  
14 broaching the idea of two-day meetings, which, of  
15 course, none of us can possibly tolerate. So,  
16 anyway.

17 (Laughter.)

18 CHAIRPERSON BOYD: Particularly if it  
19 was at Pt. Reyes.

20 All right, Greg.

21 MR. DIERKERS: Like I told Susan, I  
22 thought -- my name is Greg Dierkers, I'm a policy  
23 analyst at the Center for Clean Air Policy, and I  
24 told Susan I think we can make up a little bit of  
25 time here. No promises, but basically we're, we

1       have an advantage in that some of the measures  
2       we're going to talk about, it's sort of first, the  
3       second bullet here is, are being dealt with as  
4       well by the Integrated Energy Planning Report, in  
5       the petroleum reduction study updates. And Dan  
6       Fong's not here, but we've been in close  
7       communication about different measures. So some  
8       of these, some of the policies and some of the  
9       assumptions were out for discussion.

10               But I really want to sort of point you  
11       in the direction of implementation and how we can  
12       make some of these, these measures happen. But  
13       basically, this is sort of a, a rough outline of  
14       what I'm going to talk about. Mostly it's going  
15       to focus, a fair amount of it, at least, is on  
16       medium and heavy duty vehicles, which are about 15  
17       percent of the state greenhouse gas emissions  
18       reductions, and those are vehicles that are over  
19       8500 pounds gross vehicle weight, so anything  
20       that's not a car or a, a small SUV pretty much  
21       falls into that category. Also, I'm going to talk  
22       about freight and, and vehicle miles, travel  
23       reduction, and, and again, a lot of these I've  
24       sort of suggested some implementation ideas, as  
25       well. So I hope to sort of point us towards that

1 direction.

2 This, this shows the relative  
3 transportation emissions for the, for the United  
4 States, and, and it's the second fastest growing  
5 sector. And in California, here's, here's sort of  
6 our challenge. These states, for the most part,  
7 have done state climate plans, and these are the,  
8 the blues are the transportation greenhouse gas  
9 emissions. And as you can see, that, that  
10 California has the largest share, much larger,  
11 actually, than the other states, in terms of their  
12 emissions from transportation. A lot of this has  
13 to do with hydro within VMT, and we'll talk a  
14 little bit about, about that later.

15 Quickly, this is just sort of a, a  
16 snapshot of the emissions projections --

17 MR. CAVANAGH: We'd like to -- actually,  
18 could you just bounce back one. This is an  
19 important -- does the California breakdown include  
20 imported electricity? It does? Damn it. All  
21 right. So once again, it's not --

22 (Laughter.)

23 MR. CAVANAGH: Well, so it's not as  
24 skewed as it looks here.

25 (Parties speaking simultaneously.)

1 MR. CAVANAGH: Okay. Sorry.

2 MR. DIERKERS: Yeah. Well, but, still.

3 (Parties speaking simultaneously.)

4 MR. DIERKERS: And so, as I said, most  
5 of this growth is from, from VMT, it's gasoline  
6 and diesel fuel, and the issue also, a fast-  
7 growing fuel is jet fuel, although we've been  
8 having some discussions within the subcommittee  
9 about is, are the projections accurate, given the  
10 state of the, of the aviation industry. And we'll  
11 see some, some policy options there, as well.

12 This is a, from the CEC, and it shows,  
13 again, sort of the relative greenhouse gas  
14 emissions from different modes of transportation.  
15 And, as you can see, the lion's share is from  
16 light duty vehicles.

17 This, and that looks like -- I'll read  
18 that. This is a snapshot of some of the policies  
19 that I'm going to be talking about. And, again,  
20 this, there's a few that I want to sort of point  
21 out. Pavley is, is up there. It's, it's a rough  
22 estimate, roughly what the 2016 estimate, so it  
23 might go up a little bit by 2020, as the vehicle  
24 fleet turns over.

25 And there's also, though, there's some

1 issues with the light duty segments that, that  
2 two-third share that we just looked at, the blue  
3 on that pie chart. There may be a little double  
4 counting in these numbers, to put a caveat, in  
5 terms of some of the ethanol for light duty  
6 vehicles as, as well. That may be a way that  
7 Pavley credit can be, can be earned by automakers.  
8 But again, I'm going to primarily focus on, on  
9 some of the heavy duty vehicles and alternative  
10 fuels, and truck efficiency and hybrid technology  
11 for medium duty vehicles, delivery fleets,  
12 primarily.

13 And these ranges here, the, the high  
14 numbers for -- is for cellulosic ethanol, and I've  
15 included the high numbers in so when you see the  
16 95 MMTCO2 at the bottom, that includes sort of the  
17 high end for all these. So it's trying to get at  
18 sort of what is maybe a maximum technical  
19 potential that we could look at.

20 SPEAKER: Could you go over the numbers  
21 at the bottom?

22 MR. DIERKERS: Sure. If we did all  
23 these, and this includes Pavley, and some  
24 cellulosic ethanol, it's, you know, you're still  
25 looking at, at 15 percent above 1990. If you look

1 at 2000, it's, you know, it's a little bit, that  
2 comes down a little bit. It's maybe ten percent.  
3 But it's -- and there's a few, there's measures  
4 that, that we still have to consider some of  
5 these, other -- but again, we're looking at some  
6 of the high end of the ranges here. So, just to  
7 be aware that the challenge is, this sort of  
8 presents a challenge, I guess, as to where to put  
9 it.

10 So the first sort of area I want to talk  
11 about, and this has been a pretty big focus in  
12 our, our subcommittee, is sort of a heavy duty and  
13 medium duty vehicles as an opportunity in  
14 California to reduce emissions. And again, this  
15 is being, being considered and has been considered  
16 in the petroleum reduction study. And we should  
17 have some new information in the next couple of  
18 weeks, Susan, I guess, on, on this, which will  
19 change some of -- that may change some of these,  
20 these reduction numbers.

21 Sort of we talked about on one of our  
22 calls, doing a range, so I've done kind of a low  
23 and high scenario. And basically, what this does,  
24 and again, this gets at the 15 percent of  
25 greenhouse gas emissions from heavy duty vehicles,

1 and we've looked at natural gas and propane for  
2 the alternative fuels, and truck efficiency, based  
3 on studies that have been done by the CEC, as well  
4 as national studies, to look at what are the sort  
5 of potential for truck efficiency. And then  
6 hybrid electric vehicle technologies for medium  
7 duty vehicle, the FedEx fleet, some things like  
8 that.

9 So, you know, basically, you know,  
10 greenhouse, the, the alternative fuel, sort of  
11 that fuel will get the lowest end, the 20 percent  
12 savings. That's, we've sort of assumed five  
13 percent of the fleet, so it's sort of a low  
14 scenario. And then as you go to the high  
15 scenario, it just, I mean, I guess I would point  
16 you to sort of the second end of that parentheses'  
17 numbers, and it shows a sort of, you know,  
18 increasing, you know, increasing sort of  
19 penetration within the fleet as sort of the low  
20 and high scenarios.

21 MR. HERTEL: When you're speaking hybrid  
22 technology here, you're talking current  
23 technology, plug-ins, what?

24 MR. DIERKERS: This is for medium use,  
25 so it's like FedEx has a hybrid technology in

1 place that they're looking at for their, for their  
2 fleet. So it's not plug-ins at all, at this  
3 point. It's sort of what's, I guess, right on the  
4 cusp of, you know, sort of being available today.

5 MR. HERTEL: But you are looking at the  
6 possibility of plug-in hybrids.

7 MR. DIERKERS: Right. Definitely.  
8 Yeah, that's been, that's been raised by a few  
9 subcommittee members.

10 This is probably too much information,  
11 but it's sort of, again, it's a snapshot of, you  
12 know, the, the previous slide sort of shows the,  
13 the different penetration rates, as well, and then  
14 some of the greenhouse gas and, and the fuel  
15 savings. And so in the, sort of the bottom three  
16 rows there, you know, how much diesel is  
17 displaced. In the high scenario it's a, a pretty  
18 significant share. And this doesn't really  
19 include some of the, the port measures that we'll,  
20 we'll talk about in a minute.

21 The other sort of opportunity in the  
22 heavy duty and medium duty fleet is bio-diesel.  
23 And this has been used in, in pilot programs in  
24 California. The city of Berkeley has a pretty  
25 comprehensive pilot program. And what we've



1       assumed here is this is based on what other states  
2       have done, and what's being considered around the  
3       U.S. is two percent bio-diesel blended within the,  
4       most of the diesel fuel sold in California. And  
5       this two percent helps lubricity and doesn't --  
6       and is, and doesn't affect current automotive  
7       vehicles at all in terms of, of the NOx increase.  
8       But if you get up to the 20 percent, this is sort  
9       of the, the 2020, you get a much bigger impact in  
10      greenhouse gases, but there's, there are some  
11      issues with NOx, and there's been some recent  
12      studies by Mark Taluke looking at different crops  
13      and, and, you know, potentially raising some  
14      concerns that soybean based bio-diesel is, you  
15      know, may have, may create an increase in  
16      greenhouse gases, as opposed to a reduction. So  
17      this needs to be considered, and just to, to make  
18      everybody aware of it.

19               Now, this again sort of is a, a snapshot  
20      of what is sort of the 2020 number, that's sort of  
21      the, the technical potential, I would -- for bio-  
22      diesel.

23               And this is sort of just an overview, I  
24      guess, I would, you know, point you to the, the  
25      bottom three bullets there, that look at how we're

1       going to make these policies happen, what are  
2       some, some things we can look at. And for the  
3       most part, I think we're, we're thinking about  
4       sort of fleet programs and voluntary pilot  
5       programs. For bio-diesel it's a little bit  
6       different, because you kind of want to get a  
7       statewide integration. You don't want to focus on  
8       niche fleets as much. There's more of an  
9       opportunity to, to, you know, expand your market  
10      relatively rapidly.

11               And there's, there's some good examples.  
12      New York is using it on a, on a throughway, and --  
13      which also then has the advantage of sort of sort  
14      of capturing out of state vehicles, as well as  
15      other vehicles. The other interesting thing that,  
16      that Michael Meacham and I were talking about  
17      yesterday is that older vehicles, you know, and  
18      out of state vehicles, you know, had an added  
19      benefit from the use of bio-diesel. And so if  
20      we're, if it is sold throughout the, you know,  
21      fuel mix in California, there's a, there's an  
22      additional benefit for that, for vehicles passing  
23      through the state.

24               I'll talk a little bit about light duty  
25      ethanol. These, this is the, the great model

1 developed by Michael Wang and others at Oregon  
2 National Lab, and this, you'll notice the far  
3 right column, so it shows the greenhouse gas  
4 savings based on different fuels. And the higher  
5 numbers there at the bottom are sort of, you know,  
6 cellulosic ethanol, where you get the largest  
7 impact. And that's, as you can see, if you look  
8 to the sort of feedstock, the first -- I think  
9 it's the second column, you see that, a lot of  
10 that is from the sequestration of carbon in  
11 growing, growing crops.

12 This is woody bio-mass and fast-growing  
13 trees, and switch grass and other, other  
14 technologies that are not quite ready for market  
15 today. But what we've assumed, and again, this is  
16 based on other, other state models and what is  
17 going on around the country, is looking at low  
18 level blends of ethanol and gasoline, and the CEC  
19 had, had an alternate fuels working group that's  
20 represented some of this in the market integration  
21 for these fuels, so we think that the fuel  
22 availability is there. It's just a matter of, of  
23 actually making these policies happen.

24 So this, this slide here, this is the  
25 implementation. California only produces about 30

1 million gallons of ethanol a year, but nationwide,  
2 ethanol production is, has doubled over the last  
3 five years, and it's growing rapidly, so the  
4 supply issues are, are, you know, less of an  
5 issue, but they're, there are still challenges in  
6 importing, sort of importing from the west or  
7 elsewhere.

8 Minnesota has a current ten percent  
9 ethanol blend in all state gasoline, and if you go  
10 any higher than ten percent you end up with some,  
11 some issues in terms of fuel volatility and you  
12 have to get a waiver from, from EPA to account for  
13 that if you're going to use this. So the new  
14 legislation that, that was introduced a few months  
15 ago is, is planning to enter -- to go up to 20  
16 percent statewide in all gasoline in Minnesota,  
17 but it includes vehicle warranties and other  
18 things that sort of, you know, to help minimize  
19 that sort of air quality issue, which is a, has  
20 been a real challenge in terms of getting  
21 implementation, getting ethanol fully integrated  
22 into the market.

23 So there's sort of the next steps for  
24 these alternative fuels. A piece of this is to,  
25 to look at the results of the petroleum reduction

1 study and the analysis that's, that's ongoing, and  
2 just sort of -- as well as look at plug-in hybrids  
3 for light duty vehicles, and hydrogen, and sort  
4 of, sort of integrate what, what's been done here  
5 with what's, what's going on at the, the CEC.

6 I want to talk a little bit about  
7 freight and ports. And primarily, this is on dock  
8 equipment and operation. It doesn't include, it  
9 doesn't include sort of the rail linkages as well,  
10 which we're going to look at for the next, the  
11 next meeting. But with the increase in truck  
12 traffic, and the California ports have been in the  
13 news quite a bit, we thought this would be, this  
14 would be a key area to look at. And I think the,  
15 sort of the policies we're going to focus on is  
16 idling reduction at the ports, and as well as  
17 truck efficiencies, similar to trucks, as you see,  
18 driving around the road, the heavy-duty trucks,  
19 but that are actually operating within the port  
20 itself and their, their mileage is very, you know,  
21 it's, it's very high. And it's also an  
22 opportunity to sort of, essentially, fuel, because  
23 you don't go very far.

24 So you could look at a number of  
25 different things, but some of the latest

1 literature on, on truck efficiency, especially for  
2 sort of short distance driving, sort of stop and  
3 starting, which is what you'd get on a port, is,  
4 you know, you can either rebuild the engine or you  
5 can retrofit the engine and it's a ten to 20  
6 percent, roughly, is the range of, of benefits  
7 you're going to get.

8           There's other things you can do. You  
9 can go low -- resistance tires. And a lot of  
10 these measures, and these numbers here that you  
11 see at the bottom, were taken from the Cal  
12 Electric Transportation Commission, and they've  
13 done an interesting study on sort of  
14 electrification of port operations. And there's  
15 some new numbers coming out in, again, the next  
16 week, I think, or, or two, and we'll sort of look  
17 beyond sort of what we've done here and do a more  
18 thorough job of sort of all port operations, as  
19 well as looking to 2020 and beyond. So I think  
20 we'll have a little more information to, to  
21 present the next time.

22           But this is based, you know, again, on,  
23 on some of the current, you know, literature  
24 that's being done at ports, and some of the work  
25 that the center is doing, the Port of New Jersey,

1 to get a sense of the efficiency and the fuel  
2 savings from port operations.

3 This, again, just sort of a snapshot of  
4 the different options. And, and I think another  
5 thing to point out, I mentioned the rail issue.  
6 We're going to talk about rail at the next  
7 meeting, and we'll get a sense of what are, what's  
8 the technical potential of a shift trucks to rail.  
9 We're also going to look at, at ship to shore  
10 power and we're going to be working with PG&E to,  
11 to do some more, to do some additional analysis  
12 that will actually, I think, be one of the, you  
13 know, first in the country to really look at the  
14 vessel mix coming into the ports in California,  
15 and getting a sense of what, what is the potential  
16 for plugging in different types of ships and, and  
17 looking at different fuel mixes.

18 So it'll be sort of a scenario analysis  
19 on, you know, based on different fuel mixes, and  
20 get a real sense, is this a, is this a greenhouse  
21 gas reduction opportunity, is it too costly,  
22 things, things along those, those lines. And  
23 there's, there's a recent report that came out on  
24 the Los Angeles Port that has a number of  
25 different implementations option. There's an --

1 Air Resources Board has some real good studies.  
2 There's a lot of, a lot of great work being --  
3 coming out there recently on this issue, and I  
4 think we'll want to integrate that into the  
5 analysis, as well.

6 VMT growth. What we've, we've done  
7 here, recognize that VMT is growing at almost two  
8 percent a year in California, although I should  
9 point out it's slowed somewhat, so it makes our  
10 job a little easier. And we've, we've sort of  
11 updated and refined a Parsons Brinkerhoff study in  
12 2001 that looked at MPOs around the country and  
13 what is sort of the potential for VMT reductions  
14 for, for large urban areas, San Francisco,  
15 Sacramento, San Diego, L.A.

16 And they, since that time, most of the  
17 MPOs have done much more sophisticated modeling of  
18 VMT reductions, and they've looked at different  
19 policy options, what, what can be done, and what  
20 can be funded and what can't be funded, and so  
21 it's the, so we sort of looked at all that  
22 information and, based on their modeling, it sort  
23 of shows a, a very small percent to a sort of ten  
24 percent reduction by 2020, based on the plans that  
25 are on the books. And these are sort of the less



1 aggressive scenarios that -- so we're recognizing  
2 that if that's sort of their extreme examples are,  
3 are not likely to be funded. We want to take into  
4 account what was more realistic.

5 But still, still, the real issue here  
6 is, is money and how are we going to sort of pay  
7 for not only better modeling and better visioning  
8 scenarios to look at potential savings, but also  
9 how to actually sort of integrate this, integrate,  
10 you know, VMT reduction and travel demand and, and  
11 planning within sort of other state entities like  
12 CEQA and, and housing issues, as well.

13 Aviation, as I mentioned, there's some,  
14 some uncertainty on the growth of the emissions,  
15 but it's projected to be growing quite a bit. And  
16 what we've done here is look at vehicle --  
17 airplane technologies and what can be done to  
18 planes themselves. We didn't really look much at  
19 the actual operations of the planes. It's, it's  
20 an issue that, that if we want to explore it, we  
21 can, but there's legal implications on what the  
22 state of California can do versus what the FAA can  
23 do on how much can we really, you know, control  
24 takeoff and landing and, and runway fees, and  
25 things like that.

1                   So we looked at aerodynamics and weight  
2           reduction and improved maintenance to get a sense  
3           of what the -- and it's not insignificant number,  
4           and I think there's probably opportunities to go  
5           further than this. This is not a -- truly  
6           aggressive analysis, as well. So, and sort of  
7           related to this as high speed rail, and at the 4th  
8           of July meeting we're having some analysis done  
9           that will look at what are some shifts from high  
10          speed rail, what, what does that mean in terms of  
11          if, if people are going to use high speed rail  
12          where are they going to gather. Are they going  
13          to gather a large dirty plane or sort of a newer,  
14          more efficient plant, and what are the, sort of  
15          the range of benefits from, from high speed rail.

16  
17                   So finally, some next steps for  
18          analysis. We're looking at a light duty vehicle  
19          fleet. Again, we, we sort of put Pavley in there,  
20          recognizing that there's some uncertainty. But  
21          the issue of fee-bates has been raised, and how  
22          that might play. And some recent work by David  
23          Greene will be, will be looked at in detail, and  
24          as well maybe working with the University System  
25          of California to get a, get a sort of sense of

1        what a fee-bate program might look like in  
2        California. And depending on how you structure --  
3        a fee-bate, I should say, is a combination of fees  
4        and rebates, fees for heavier vehicles, light duty  
5        vehicles. So if I buy a Hummer, it's going to be  
6        more expensive, and if I buy this little hybrid,  
7        it's going to be less expensive to get a, a rebate  
8        back. So it's a way to sort of change, you know,  
9        consumer behavior in the direction of more  
10       efficient greenhouse gas friendly vehicles. So,  
11       so that, that's something we'd like to look at.  
12       And there's, there's some potential there.

13                Plug-in hybrids, I've mentioned. I  
14       mentioned that earlier, somebody asked about it.  
15       It's a pretty important piece of this. I think  
16       it, when you look at the reductions from hybrid,  
17       you know, plug-in hybrids, it's pretty  
18       significant. So we'll take a look at some  
19       scenarios there and, and think about what we want  
20       to assume in terms of the integration into the  
21       fleet.

22                Other ideas that have been discussed are  
23       greenhouse gas fees for trucks. Big trucks are a  
24       significant share of the issue. Instead of  
25       weight-based fees, can we do some kind of a

1 greenhouse gas-based fee, just sort of, you know,  
2 set the, sort of send a signal that, you know,  
3 this issue is based on, on greenhouse gases, in  
4 addition.

5 Congestion pricing and, sort of --  
6 movement, how to, how to sort of prevent the  
7 congestion during the day for -- can, can we  
8 shift, you know, peak goods delivery movements.  
9 It's, there's a lot of just in time delivery now,  
10 so it's, it's a challenge. But if we can shift  
11 some of that, some of the freight deliveries to,  
12 to off peak hours, you'll see some congestion  
13 reductions overall and see some -- as well as  
14 safety and air quality and other benefits.

15 And again, the main costs haven't really  
16 been, been looked at here, but some of that is  
17 being done in the Petroleum Reduction Study, and,  
18 and we'll certainly be able to do that for some of  
19 the alternative fuels. And, and efficiency  
20 measures, whenever you save a gallon of fuel you  
21 can pretty easily put some numbers on that. So  
22 we'd like to do that.

23 We would also like to look in, in depth,  
24 at sort of incentive and pilot programs, and  
25 there's a lot of great work that's been done out

1       there by the CEC in this, as well, so we'll point  
2       to that, as well.

3               I think that's it. Any questions?

4               MR. PARKHURST: I have two questions.  
5       The first one, has there been any consideration to  
6       the growing use of telecommuting? Have any  
7       incentives -- that encourage that, or have  
8       programs to do that? It, it has, it's shown large  
9       reductions in, in both congestion, getting cars  
10      off the road, and in, in reducing vehicle miles  
11      traveled.

12              MR. DIERKERS: That's a good point. We  
13      haven't specifically discussed it. There's a --  
14      but there is, I mean, there are clearly federal  
15      programs and state pilot programs that we can, can  
16      look at.

17              MS. BROWN: I would just like to comment  
18      that when we did the Petroleum Reduction Study a  
19      couple of years ago, we did look at telecommuting  
20      as an option, and there's some excellent research  
21      done at UC Davis. The bad news is that on a  
22      statewide basis, you're looking at maybe one to  
23      two percent of total statewide transportation  
24      demand being impacted by these programs, so they  
25      have had a disappointing impact --

1 MR. HERTEL: So far.

2 MS. BROWN: -- statewide, so far.

3 MR. PARKHURST: One to two percent  
4 that's implemented, or one to two percent  
5 that's --

6 MS. BROWN: I'm sorry?

7 MR. PARKHURST: Is it one to two percent  
8 that's actually implemented, that --

9 MS. BROWN: Yes. But --

10 MR. PARKHURST: Okay. So, so --

11 MS. BROWN: -- it's one of those issues  
12 that, you know, it's state policy to support, and  
13 we would encourage it. But based on the total  
14 petroleum demand, it hasn't had a huge impact yet.  
15 So I think your point would be that more needs to  
16 be done to incent those kinds of programs.

17 MR. PARKHURST: We'd be happy to sell  
18 technology to help people take this up.

19 MS. BROWN: Yeah. I'm not trying to  
20 spill water on it. I'm just trying to say that  
21 the, you know, the research being done, Pat  
22 Moctarian is the professor at Davis that's really  
23 the expert that we've worked with.

24 MR. CAVANAGH: Which is -- I just want  
25 to make sure I understood. Is she saying it can't

1 make a substantial difference --

2 MS. BROWN: It hasn't yet.

3 MR. CAVANAGH: Well, but -- oh, but  
4 presume it does.

5 MS. BROWN: But I -- that's probably  
6 true of a lot of things.

7 MR. CAVANAGH: Yeah. I, I guess it  
8 would be more important, I think, to have some  
9 sense of what difference it could make, using the  
10 best software that --

11 MS. BROWN: Right.

12 MR. CAVANAGH: -- Robert has available  
13 on an appreciable scale. Do we know that?

14 MS. BROWN: I don't think we know that.

15 MR. CAVANAGH: Okay.

16 MR. HERTEL: Part of, part of the  
17 problem that I -- is that I've been a fan of this  
18 for a whole lot of personal reasons. But part of  
19 the problem that I hear from my air quality  
20 regulatory friends -- Jim and -- I count you among  
21 those -- is, is that mostly you get a recidivism.  
22 People will stay at home, telecommute, but they go  
23 drive while they're at home. And so there's,  
24 there's a -- it's kind of like the intermittency  
25 of windpower and the need to supply back-up

1 fossil, Ralph.

2 MS. BROWN: I think -- yeah.

3 (Laughter.)

4 MS. BROWN: You're absolutely right.

5 Research does show that there is an increase in  
6 discretionary driving for telecommuters.

7 CHAIRPERSON BOYD: In, in the seventies  
8 and eighties we did a lot of work, I mean, we  
9 really did. The cogs or NPOs did a lot work in  
10 this arena as part of the, the first couple of  
11 iterations of the state, you know, air quality  
12 state implementation plans, and there was a lot of  
13 hope and a lot of, of reliance put on the fairly  
14 significant reductions here. It just didn't  
15 materialize, and I frankly believe have lost total  
16 touch with the subject. It just hasn't been  
17 talked about lately very much, that I've heard.  
18 And I would imagine technology is a lot different  
19 and better now, although now people just carry  
20 that technology in their car with them, I, I  
21 think.

22 And, and it seemed to me there was,  
23 while academically it sounded good, a lot -- a lot  
24 of employers were very reluctant to really let go  
25 and to, I'm sorry to say, trust the employees to,



1       you know, keep the bargain, and so on and so  
2       forth. And, and some of that was. There was an  
3       observation of a lot of, a lot of chores got taken  
4       care of when that -- so I don't, I don't know  
5       what's become of it. It's certainly a good  
6       question. It might be worth getting some  
7       information from AT&T, who has really been a, a  
8       leader in this and has got a lot of information, a  
9       lot of studies on it. So I can put, you know, you  
10      in touch with those folks.

11               MR. PARKHURST: I had a second question.  
12      When you were talking about fees, was there any  
13      discussion about changing the, the fees based on  
14      age of cars? As, as I understand it, in, in some  
15      countries such as Japan, is that the registration  
16      fee-bate of car increases with age. And so it  
17      really encourages people to, to get newer cars  
18      and, and not -- I've always heard it's 90 percent  
19      of the air pollution is ten percent of the cars,  
20      or something like that. Any discussion of that?

21               MR. DIERKERS: Probably that's more of  
22      an air quality issue, I think. Scrappage is, is  
23      on here, but I think it's, most work sort of in  
24      the, has been done or -- in another place, Canada,  
25      they've done a lot on vehicle scrappage, and it's,

1       it's an air quality benefit from the CO  
2       perspective, as well as some other --

3                   (Parties speaking simultaneously.)

4                   CHAIRPERSON BOYD: Well, what Robert was  
5       talking about, the, the policy of the Japanese  
6       early on was to do that, because they were  
7       developing an auto industry and they had to  
8       develop it at home before they developed it  
9       abroad. And the idea was force their people to  
10      buy -- you know, incentivize their people to buy  
11      cars by having, you know, an increasing fee that  
12      went with the age of the car.

13                  Interesting. A lot of these things are  
14      interesting, but I welcome you to California and  
15      the debate about vehicle registration fees just a  
16      couple of years ago.

17                  (Laughter.)

18                  MS. CORY: Yeah. I was going to invite  
19      Robert to be involved in a smog check -- some kind  
20      of a reality check. Try to change smog check.

21                  MR. HERTEL: One question I had, or a  
22      comment, at least. It occurs to me that there may  
23      be some way to generate the funds necessary to  
24      make some of these changes. For example, the  
25      thought has occurred to some of us that

1       electrifying commuter trains, particularly the  
2       MetroLink trains in the L.A. Basin, would be a  
3       fine way to reduce emissions in the basin, not  
4       just the greenhouse gases but conventional health-  
5       based pollutants. And the, the contrary argument  
6       is that it's very expensive. A lot of bridges  
7       have to be moved to put in the electric -- and so  
8       forth. Obviously a lot of transformers have to be  
9       put in place, and so forth. But, and so, so the  
10      metropolitan transit folks don't want to spend  
11      those funds. But yet, if you look at the diesel  
12      production and the NOx production from those  
13      trains, even at full loads, they don't, they don't  
14      pay for themselves in an air quality sense. So it  
15      makes sense to kind of look at that.

16               The question becomes, where do you get  
17      the money? And one possible way to look at that  
18      is to find a way to provide emission reduction  
19      credits from reductions in those areas that are  
20      hard to get at, and make those available to the  
21      rest of the private sector who needs to develop in  
22      those basins, who are chronically short, and some  
23      would say non-existent, on certain emission  
24      reduction credits in certain air basins,  
25      particularly in the south coast, PM10, CO, to a

1        lesser extent NOx. The San Joaquin Valley, NOx,  
2        PM10.

3                All those are going to be critical  
4        development versus air quality questions coming  
5        up, so the places where you can make more linkages  
6        like that, I think you, you would potentially have  
7        some worthwhile ways of paying for what would  
8        otherwise be arguably too expensive of options.

9                MR. DIERKERS: But I think that the co-  
10       benefits issue when you look at transportation  
11       just on a dollar per ton gallon gas basis is  
12       expensive --

13               MR. HERTEL: Yes.

14               MR. DIERKERS: -- compared to other  
15       measures. So focusing on some of that issue and  
16       hitting there is really the, the -- get a clear,  
17       you know, air benefit from it, they need it.

18               MR. HERTEL; My, my point being that we  
19       still have a extreme health-based air quality  
20       problem throughout the state, but especially in  
21       our large metropolitan areas, and we have to get  
22       at that. And at the same time, we need to provide  
23       for economic growth in those regions. That's a,  
24       that's a key conflict issue that's -- everyone's  
25       struggling with now in the air quality community.

1       So linking it up with greenhouse gas reduction,  
2       finding a way to pay for those emission  
3       reductions, would require rebuilding some of the  
4       ways we do things procedurally, under the Clean  
5       Air Act. But that's worth an effort.

6               MS. DUXBURY: I just have a question.  
7       How, how much did you assumptions change, or are  
8       they going to change given just the higher price  
9       of gasoline in the state? We've had a big price  
10      signal over the past year, and isn't that going to  
11      in some ways eventually start changing behavior?

12             MR. DIERKERS: It -- usually, most  
13      studies show you need a, a change in fuel prices  
14      of \$2 to \$3 a gallon to see a real, any real  
15      impact in driver behavior.

16             MS. DUXBURY: Two to \$3 a gallon more?

17             MR. DIERKERS: Right.

18             (Parties speaking simultaneously.)

19             MS. DUXBURY: It seems like you've got  
20      to assume some behavioral changes because of --  
21      especially here in California, how high it is.

22             MR. DIERKERS: I would say gas generally  
23      20 percent elasticity estimate from, I mean, you,  
24      you're right that you need to -- you would need an  
25      increase of that kind to have a very big effect.

1 But a 20 percent effect is not a trivial effect.

2 MR. CAVANAGH: It seems to me her  
3 question is well-founded.

4 MS. DUXBURY: It seems like your  
5 assumptions should change at least somewhat  
6 because of what we've seen here in California with  
7 the price of gasoline.

8 MR. SHEARS: I think one might argue  
9 that the -- I guess I would agree that the, I  
10 mean, most studies do suggest that, most of the  
11 econometric studies suggest that, that it's  
12 incredibly inelastic. And I think, in fact,  
13 history has sort of borne that out in terms of  
14 just driving.

15 But perhaps a greater impact, in fact,  
16 has to do with what it means for the alternative  
17 solutions. It makes the alternative solutions far  
18 more cost effective, obviously, if you're  
19 competing against \$3 a gallon versus \$2 a gallon,  
20 and that ultimately, when you're thinking about  
21 cost curves, changes the economics fundamentally  
22 in a way that, that puts so many more options on  
23 the table.

24 MS. DUXBURY: Especially if people think  
25 that this is a, this cost is going to be a long-

1 term cost, not just a spike for the next couple of  
2 months.

3 MR. DIERKERS: Right. Like the Pavley,  
4 or the California greenhouse gas standards, they  
5 assume, I think, \$1.76, you know, a gallon to look  
6 at sort of the fuel savings from -- fuel savings  
7 based on the, the technologies that go into the  
8 vehicles and make them operate more efficiently.  
9 So there, now you're, \$2 a gallon, there's  
10 obviously more, a bigger win for the consumer.

11 CHAIRPERSON BOYD: Yeah. Jason's point  
12 is right on. When we did the 2003 petroleum  
13 reduction study, the average price of gas was like  
14 \$1.64 a gallon. And you, you see what those lines  
15 are. So it's my gut feeling, and, and it's being  
16 looked at in preparation for the 2004 Integrated  
17 Energy Policy Report, that that'll just move the  
18 line on some of the cost effectiveness of other  
19 alternative measures and make more of them  
20 attractive, for a change, than has been the  
21 situation in the past.

22 But I also agree that all the digging we  
23 do and all the research we keep trying to do, it  
24 seems to be driving habits are terribly, it's very  
25 inelastic because, I mean, we have built a society

1       so much around the motor vehicle that people are  
2       really trapped, at the present time. So we don't  
3       see much of a, a response.

4               (Parties speaking simultaneously.)

5               MR. WICKIZER: Doug Wickizer, Department  
6       of Forestry. On your list of next steps analysis,  
7       you mentioned at the beginning of your talk the  
8       value that had been gained from some of the PIER  
9       investments in public usage charge. I don't see a  
10      reflection in most of the recommendations that are  
11      coming out yet that would put some of that  
12      investment back into further research to bring  
13      along those emerging, those emerging technologies,  
14      to accelerate their implementation into this menu  
15      of solutions. And it would seem that that would  
16      be a valuable asset. If you're wanting to  
17      compress time periods, your research needs to be  
18      accelerated, as well.

19              MR. DIERKERS: Right. Partnerships  
20      with, you know, with other western states, for  
21      example, we, you know, we were looking at  
22      alternatives to the bio-diesel issue earlier, and  
23      different crop rotations. There's a lot of  
24      research going on at Washington State University  
25      about this. And so building on some of their



1 research is to be -- right. So the, so the pilot  
2 program sort of, it may not be, doesn't come  
3 across here, I guess, but it, that's certainly an  
4 area where sharing research and, and working  
5 within universities and -- is an important piece  
6 of this.

7 MR. FULKS: I missed what VMT --

8 MR. DIERKERS: Vehicle miles traveled.  
9 How much people drive.

10 MR. FULKS: My name's Tom Fulks. And  
11 just a couple of questions, but before I ask you  
12 that, there is a recent J.D. Powers survey out  
13 that shows 25 percent, a 25 cent increase in the  
14 price of fuel results not necessarily in a change  
15 in vehicle travel behavior, but a change in  
16 vehicle choice. And so this would explain some of  
17 the trending downward, in terms of SUV sales, to  
18 smaller engines with higher fuel economies, so you  
19 may want to consider that.

20 The question I had for you was in terms  
21 of the light duty segment. And I'm wondering if  
22 any thought was given, or any numbers referenced  
23 to the displacement issue of consumer choices more  
24 toward light duty diesels and passenger vehicles  
25 displacing gasoline vehicles with a, with the

1 attendant 20 to 30 percent fuel economy gain. Is  
2 there any, did you do any research in that area?

3 MR. DIERKERS: We, no, we haven't really  
4 looked specifically at the light duty diesel, and  
5 there are some vehicle manufacturers that are  
6 considering it, introducing diesel vehicles,  
7 Volkswagen and, and Chrysler, and others, to --  
8 but I don't, you know, specifically have much of  
9 that, of what that might mean. And it could be  
10 part of the mix in, in terms of meeting California  
11 greenhouse gas standards, certainly.

12 MR. FULKS: Thank you.

13 MR. MARK: If I could just add, add,  
14 Greg, and just clarify. In fact, I think all of  
15 those light duty vehicles try to -- they get  
16 subsumed into something like the gas -- these are  
17 compliance pathways that, that are going to be  
18 available. And so the question remains, do we  
19 need to put on the policy table additional items  
20 beyond the greenhouse gas standards for the light  
21 duty sector. We've obviously put some fuel  
22 strategies on the tables, which aren't covered by  
23 the, the greenhouse gas rules directly.

24 CHAIRPERSON BOYD: Any other questions  
25 for Greg? Is that it for you, Greg? Okay, thank

1       you.

2               MR. DIERKERS:  It is.

3               MS. BROWN:  We had allotted some time  
4       for subcommittee feedbacks.  We wanted to give  
5       Jason Mark or Michael Meacham a chance to make a  
6       few comments.

7               MR. MARK:  After you, kind sir.

8               MR. MEACHAM:  Okay.  They kind of  
9       covered our, our first part of our approach was  
10      really -- let me back up and say that.  I wanted  
11      to thank Greg for all his work and help, and as  
12      well as the rest of the committee members, but  
13      Greg really did a tremendous job for us, and we  
14      appreciate it.  And it's so good that, you know,  
15      our first approach was going to kind of be to open  
16      it up and ask people what's missing in this.  And,  
17      as you could probably tell from what got on paper,  
18      as well as what the audience survey said, you've  
19      already done some of that.

20              But we really, as a committee, wanted to  
21      open up and ask you if there's anything missing  
22      from these topics.  And you've already brought up  
23      quite a few in terms of telecommuting and  
24      generating funds, and things like mobile emission  
25      credits.  But we wanted to start there first.

1                   And if not, I guess the next thing was a  
2           little bit about additional analysis, and some of  
3           that was mentioned. But if there are any areas,  
4           additional areas of analysis that you thought we  
5           should pursue in particular, and I do think that  
6           one of the things that was really important, or  
7           viewed in this group was the fee bate study and  
8           how its sensitivities apply to some of the  
9           comments that were made about where the  
10          investments make a difference on the total  
11          reduction in miles traveled. And, and I think  
12          that's analogous to the kind of low hanging fruit  
13          that wa talked about in energy efficiency.

14                   But if there are any other areas from  
15          the committee that people are interested in seeing  
16          more analysis, other than those that were already  
17          mentioned.

18                   MR. CAVANAGH: What, what I want to  
19          encourage you to do is, because I think you've  
20          got, there's a great deal on the table. If, if  
21          you can try to do what we -- we will come shortly  
22          for the electric power sector to a discussion of  
23          some recommendations to, to bring forward from the  
24          committee. If I could encourage you, there's a  
25          danger of getting swamped, you know. We've got

1       glorious diversity and, and prolixity of detail,  
2       but I think you're actually now at the point where  
3       you can begin to boil some of this down. And I  
4       would encourage you to do that.

5               MR. MARK: Yeah. I would argue that,  
6       that we're sort of -- well, I guess I'll put it  
7       this way, that we're in the stage of needing to  
8       move from a series of technology assessments to a  
9       series of policy assessments. And, and that  
10      should form the basis of developing some  
11      recommendations for us all to consider as a group.  
12      And I think in order to get from Point A to Point  
13      B, there probably are some additional analyses  
14      that, that need to get done. And in particular,  
15      there's so much that has been done in the state of  
16      California, obviously, on transportation  
17      strategies, whether or not for petroleum reduction  
18      or, or greenhouse gases over the years, that  
19      there's so much to draw from. And perhaps I'm  
20      going to need to be updated to reflect, for  
21      example, higher prices.

22              But more importantly, I think what Greg  
23      has identified are some critical holes in some of  
24      those analyses that we really do need to spend a  
25      little bit of time doing more analysis on, I

1 think, with the indulgence of the committee and  
2 their support, and that is, for example, air  
3 travel, which is an important source of emissions  
4 in California and growing faster than, at least  
5 nationally, than any other transportation source.  
6 Freight sector, thinking of, of concrete policies,  
7 not just technologies, that could deliver  
8 greenhouse gas savings. So I'm hopeful that, not  
9 replicating analysis that's already been done  
10 there, but focusing your attention on places that,  
11 where there are important holes will also be an  
12 important step.

13 But I couldn't agree more, Ralph, that I  
14 think, you know, we quickly need to move  
15 throughout the summer to, as I said, a series of  
16 policy recommendations, rather than just straight  
17 here's what the technology can, can deliver.

18 MS. CORY: As far as the shifting of the  
19 trucks to the rail, I have, I would suggest that  
20 you talk to the director of engineering at the  
21 Port of Oakland. They're trying to make a  
22 significant effort to do that right now, and  
23 they're very involved in a big scale project to do  
24 that, and they probably could help you a lot with  
25 the pros and cons. And if anybody in California

1 is doing it right now, it's probably the Port of  
2 Oakland, and I can give you the contact for that.

3 MR. MARGOLIS: I'd like to suggest that  
4 you consider a means by which somebody can plug in  
5 a quarter every time they buy an air ticket.  
6 It's, it's an idea that's gained some traction in  
7 the, in the European Union, where you, you pay an  
8 extra 50 cents or so. And it's an -- it's, and  
9 that pooled money then goes towards a pot that can  
10 be used to accomplish greenhouse gas reductions.

11 MS. DUXBURY: Is that something that, in  
12 like corporate travel, you could do, and then the  
13 companies, you know, I mean, Calpine, we all  
14 probably send a lot of people on airplanes, that  
15 you could then have that as some kind of a pool  
16 for early reduction offsets or something? Because  
17 I think that would be a much, you know --

18 MR. MARGOLIS: It's a --

19 MS. DUXBURY: -- more likely way to get  
20 people to participate than trying to do it on an  
21 individual basis.

22 MR. MARGOLIS: It's a giant spreadsheet  
23 in the sky. I mean, if there is a mechanism to do  
24 this, then Calpine or Hewlett Packard or, or BP  
25 can say, you know, it's our policy that you

1 mitigate your, your air travel --

2 MS. DUXBURY: Or a piece of it.

3 MR. CAVANAGH: Now, there are, of  
4 course, ways to do that. I mean, you could go --  
5 there are websites right now that will let you go  
6 do precisely what you just described. I take it  
7 you're, you're simply adding that you make it, the  
8 option there at the point of purchase.

9 MR. MARGOLIS: Well, at the point of  
10 purchase, but specifically say we in California  
11 support this. And this is helping, and this is  
12 something the committee supports. And what's the  
13 downside of it? I don't see any downside.

14 MR. MARK: Well, why do it there? Why  
15 not --

16 MS. DUXBURY: A quarter -- it sounds  
17 like a --

18 MR. MARK: More than a quarter,  
19 probably.

20 MR. MARGOLIS: Whatever the number is.

21 MR. CAVANAGH: The only downside is if  
22 that kind of enlightened -- I think the only  
23 downside is if you let that kind of enlightened  
24 volunteerism, which I strongly support, replace  
25 and become a full substitute for measures to



1       reduce emissions that are more broadly applicable.

2               MR. MARGOLIS: Amen, brother. But  
3       absent, absent a mandate, you know, if we have a  
4       mandate then we can work around the mandate. And  
5       I, perhaps there will be one by the time we finish  
6       this discussion, this year. But if there's not,  
7       then we're -- we need to work with what we've got.

8               MR. CAVANAGH: And then if -- so, if the  
9       committee is, if, if I take from this, I agree  
10      with it. One recommendation is for the committee  
11      to help make it easier for people to exercise  
12      enlightened volunteerism. And there, if we're  
13      going down that route, we would need to do a  
14      little more work on what's out there now. So I  
15      know, because I'm on the board of the Bonneville  
16      Environmental Foundation, there's a simple  
17      calculator on the web that allows anybody who  
18      wants to to displace any carbon emissions  
19      associated with any part of their lives that they  
20      wish, and there are several others.

21              But we probably do not want to wish,  
22      wish taking a competitive position in favor of  
23      those which members are serving on the board, but  
24      we could at least alert people to the existence of  
25      those options and give them some illustrations.

1                   MR. MARGOLIS: And maybe there's a, a  
2 means by which there's a shake-out amongst those  
3 different options, because if the money comes into  
4 that pool from six different websites and the  
5 money is used in a way that's approved by the  
6 California Climate Registry or the Energy  
7 Commission, or whomever, then we have real  
8 reductions that can be used for the purposes of  
9 the pay that you just described. But if the  
10 money's going into whoever, you know, plug in a  
11 quarter and you're not sure what happens to the  
12 money, then there's less of a cause and effect.

13                  CHAIRPERSON BOYD: Okay. Any other  
14 comments, questions, on this subject matter?

15                  All right. Susan, I guess we move on.

16                  MS. BROWN: I think we're at that hour  
17 we can move on the power sector. Stacey.

18                  CHAIRPERSON BOYD: Absolutely. Back on  
19 schedule.

20                  MS. BROWN: It took us an hour and ten  
21 minutes.

22                  (Parties speaking simultaneously.)

23                  MS. DAVIS: All right. Well, this  
24 presentation essentially walks us through the  
25 paper that I distributed in not as much detail as

1 the paper goes into, so if there's anything that I  
2 miss that you want to discuss that was in the  
3 paper, feel free to bring it up at the end.

4 This reflects a lot of discussion that  
5 we've had with folks already in the conference  
6 call that we had earlier this week, as well as  
7 some experts in Washington, and some one on one  
8 conversations. But it is still a work in  
9 progress, and we're hoping to get more feedback  
10 from this group. And we'll hopefully finalize the  
11 paper as soon as we get what we feel is the, the  
12 right amount of input here.

13 In terms of some of the context for this  
14 presentation, cap and trade for the power sector  
15 is just one of a number of approaches that we'll  
16 be looking at, similarly to how we've looked at  
17 benchmarking and voluntary approaches and  
18 incentives, et cetera, both for cement and bio-  
19 digesters. We'll also be looking at the full  
20 suite of measures for the power sector. This  
21 presentation does just focus on cap and trade, and  
22 specifically on one way of designing a cap and  
23 trade program to look at capping emissions  
24 associated with power demand.

25 Normally, when, when you do a cap and

1       trade program, at least this is the way that it's  
2       been done in every other circumstance, is you cap  
3       the emissions from generators. And that's fairly  
4       straightforward, because generators have to report  
5       their emissions, at least in the U.S., through  
6       their continuous emission monitors, and you have a  
7       pretty good baseline and you can work from there.  
8       This would be the first time that we're thinking  
9       about capping emissions associated with power  
10      demand, so there are a lot of design issues that  
11      really haven't been considered in, in much detail  
12      before this.

13                So under the normal circumstance, you  
14      cap the emissions from the generators, and then  
15      they figure out how to comply. In this case, it  
16      would be capping emissions from the LSEs. In the  
17      context of the existing programs that have already  
18      been done for the acid rain trading program, for  
19      example, it was proven to be highly successful in  
20      reducing emissions at much lower costs than what  
21      had been anticipated, and with 100 percent  
22      compliance. And this, a similar pattern seems to  
23      be emerging every other place that cap and trade  
24      is used, in terms of getting a lot of emissions  
25      reductions based on the cap level and, and doing

1       it at lower cost.

2               Unfortunately, this approach may not  
3       work as well in California due to some structural  
4       constraints, one being the large share of  
5       emissions from the power sector that come from out  
6       of state sources to meet the California power  
7       demand. Second, there, there is a potential for  
8       leakage because of the, the high emitting coal  
9       plants from out of state. If they're not part of  
10      the program there's a potential that those  
11      emissions could actually increase and, and  
12      eliminate or even reduce some of the emissions  
13      that would be expected under a cap and trade  
14      program that it supplied just to California.

15             And then, third, there may not be as  
16      many control options available to California  
17      because it's mostly not natural gas-fired fossil  
18      generation, as opposed to coal. For example, when  
19      you switch on the margin, when you run a coal  
20      plant a little less and, and run a gas plant more,  
21      you're getting a much bigger emissions  
22      differential than when you switch from a gas plant  
23      that's more efficient to one that's less  
24      efficient.

25             Just to talk a little bit more about,

1       about these limitations. Leakage is essentially  
2       the transfer of power generation and the  
3       associated emissions to uncapped sources in  
4       neighboring states or regions, and this occurs if  
5       -- and I say if because it's not a sure thing --  
6       there, as a result of the California cap program,  
7       there is an increase in electricity prices that  
8       would essentially provide a cost advantage to the  
9       out of state sources, and they would then run more  
10      and state generators would, would run less. The  
11      California cap would be met in part due to reduced  
12      generation, but, but emissions would actually  
13      increase out of state.

14               And I say if, because that -- you can  
15      actually design a, a cap and trade program that  
16      doesn't increase electricity costs, and part of  
17      that is the allowance allocation method that's  
18      used, and part of it is, you know, with the  
19      stringency of the program. And between those two  
20      things it's possible to minimize those impacts  
21      from the get-go. But if you do see those kind of  
22      impacts, you are, in the California situation,  
23      likely to see some, some leakage, given that you  
24      do have much higher emissions from the out of  
25      state coal resources.

1           The, the other ways to minimize the  
2       effects of leakage would be to expand the, the  
3       scope of the program so that you subsume,  
4       essentially, those core resources as part of the  
5       program. And we'll look at three different policy  
6       alternatives for addressing emissions from out of  
7       state power.

8           One is, is essentially establishing a  
9       multi-state cap and trade program. And under this  
10      scenario, you have a cap and trade program not  
11      just in California, but each neighboring state  
12      would design its own cap and trade program and  
13      hopefully limit them altogether so you could have  
14      trading across the different states. And, of  
15      course, the broader the program, the more  
16      emissions you would include, including those coal  
17      based emissions, better. And while this might be,  
18      you know, the best approach, if you could get it,  
19      you know, there may be some difficulties in  
20      negotiating with these other states, especially  
21      ones that have a lot of the coal resources, they  
22      may not have the same incentives. And for  
23      California to be able to do something on its own,  
24      you can't necessarily rely on any other states to  
25      follow, to follow suit.

1                   So we suggest that this might not be  
2           the, the first approach, but there might be some  
3           disagreement in this room and we're happy to, to  
4           listen to that and, and think about the options  
5           for negotiating a multi-state approach.

6                   A second approach to reducing emissions  
7           from out of state power is to look at an emission  
8           portfolio standard, and this is something that's  
9           been -- something that's been used, or at least  
10          starting to be used in New England and, and the  
11          northeast, where they have rules in place that  
12          allow this kind of approach for criteria  
13          pollutants and largely, although it hasn't  
14          actually gone into effect, as in most states it  
15          depends on another state implementing the same  
16          thing, and because you haven't had that, none of  
17          -- they haven't really gone into effect, but there  
18          are provisions in the law for it to happen.

19                  But essentially, it establishes a rate  
20          where power purchase by load-serving entities to  
21          meet California demand meets a pound of emission  
22          rate for megawatt hour produced. Under this  
23          scenario, you, emissions can increase as demand  
24          increases, similar to, you know, the other sectors  
25          that we were talking about. So that's a



1        limitation. And also, it'll, it'll be more  
2        difficult to trade with other sectors because  
3        you'll have a rate based approach and potentially  
4        a cap approach, and in order to link those, you  
5        know, the way England has done it, Great Britain,  
6        you know, they've established a bench, a gate --  
7        I'm sorry, a gateway program so that you can't  
8        sell more than, than what you buy into that  
9        broader market. But you can trade within the, the  
10       benchmarking sectors. There are ways to do it,  
11       but it's a little bit tougher.

12                The third way --

13                MR. CAVANAGH: Stacey, if I could.  
14        Denise, this is, I think, exactly the problem that  
15        your folks were raising.

16                MS. MICHELSON: Right. We had a concern  
17        after reading, reviewing the report, and Stacey,  
18        you've touched on a couple of those issues.  
19        Lacking a national program and looking at the  
20        emerging regional programs and state programs, our  
21        concern was linkage, eventual linkage to the other  
22        systems. If California had a power demand based  
23        system versus the other programs nationally having  
24        a generation based program, which in, in looking  
25        further at perhaps potential cross sector trading,

1       we were looking at what were the implications of a  
2       demand based system versus like manufacturing, or  
3       any other, any other system that's throughput  
4       based, production based, generation based systems.

5               And we would think that would be  
6       something that we would want to have further  
7       analysis on the actual linkage of that, those  
8       systems.

9               MS. DAVIS: Absolutely. That's  
10       something that we can do, and benchmarking is  
11       certainly one approach that we'll be looking at  
12       for all the different sectors. And while it's  
13       tougher to link it with a straight cap and trade  
14       program, there are ways that it is being done  
15       right now.

16              MR. CAVANAGH: Although, Stacey, in  
17       terms of what you end up recommending, I, I will  
18       simply make a statement, which we can back to. I  
19       believe that the cap you are recommending, a load  
20       based cap, is completely compatible for inter-  
21       regional trading purposes with the New England  
22       generation based cap.

23              MS. DAVIS: Absolutely.

24              MR. CAVANAGH: And I think if you can  
25       reassure Denise on that point later, it will be --

1       and all of us --

2               MS. DAVIS: I'll get to that in the next  
3       slide, actually.

4               In terms of how a cap on emissions  
5       associated with power demand is developed, each  
6       load-serving entity would hold allowances for the  
7       emissions from the power that they sell to  
8       California customers, regardless of where it's  
9       generated. They have a variety of compliance  
10      options that they might use in order to do that.  
11      They can purchase allowances, they can replace  
12      higher emitting fossil generation with lower or  
13      zero emitting resources, or they could invest in  
14      supply or demand side energy efficiency.

15              And I, I think that this is one of the  
16      key advantages to a demand based program, in that  
17      LSEs have access to all of these different  
18      options, whereas under a generation based cap,  
19      certain kinds of generators might specialize in,  
20      in only one or the other of these, of these  
21      elements, but an LSE might have access to all of  
22      those.

23              Some of the advantages include an  
24      absolute cap on emissions associated with power  
25      demand, like a generation based cap, and does set

1 a limit on carbon dioxide emissions for the state.  
2 It may encourage development of these lower zero-  
3 emitting resources, including energy efficiency,  
4 and might encourage longer term contracting with  
5 these resources. And it limits the potential for  
6 leakage. And, and maybe it's actually a later  
7 slide where I talk about linking, but, but there  
8 is a greater possibility, you know, very seamless  
9 linking with other programs because the CO2, under  
10 a cap and trade program, on a demand basis is the  
11 same as CO2 on a spot basis. A ton is a ton. So  
12 there shouldn't be any problems with linking. I  
13 mean, you would look at the same kinds of issues,  
14 in terms of program stringency, as, as you would  
15 with any other monitoring verification, et cetera.

16 MR. MARK: Just to be clear, Stacey,  
17 you're talking not just about linkage between  
18 power sector carbon programs, but also in the  
19 multi-sectoral. In other words --

20 MS. DAVIS: Exactly.

21 MR. MARK: -- tons saved in the power  
22 sector might be available for sale into something  
23 that included the oil industry.

24 MS. DAVIS: This would be linking into  
25 the cross sectors, and also between RGGI, say,

1       and, and the California program.

2               Some disadvantages. There is a  
3       potential for compliance with -- through contract  
4       shuffling, which could actually reduce the net  
5       impact. While, while California would have its  
6       cap met, met within the western grid, there may  
7       not be any change in generation resources in, in  
8       net emissions.

9               A second disadvantage --

10              MR. HERTEL: Do you want to elaborate  
11       that, please?

12              MS. DAVIS: I'll elaborate that on, on  
13       the next slide.

14              MR. HERTEL: All right.

15              MS. DAVIS: There are some challenges  
16       also in, in tracking emissions and monitoring  
17       compliance that would need to be addressed, and  
18       increased potential for problems with the power  
19       liability. This isn't a sure thing, by any means,  
20       but we can see some, theoretically, some ways that  
21       this could happen, and we want to make sure that  
22       we acknowledge them and address them to the extent  
23       that they are real.

24              MR. HERTEL: Do you not have as a  
25       potential disadvantage a cost and effectiveness

1       for this type of approach because you assume some  
2       sort of a rebate? Why isn't one of the  
3       disadvantages the potential increase in the price  
4       of electricity to Californians?

5               MS. DAVIS: It's not necessarily true  
6       that electricity prices would increase. It may,  
7       they may increase, and it'll depend on the  
8       stringency of the cap, and it'll depend on the  
9       allowance allocation method that's used. And --

10              MR. HERTEL: But that's, that's like  
11       saying, that says to me that we can't talk about  
12       this until we set a goal. You know, if you, if  
13       you're only going to reduce this sector by, pick a  
14       number, one percent, then I don't need to raise  
15       any concerns. If you're going to reduce it by ten  
16       percent over five years, then probably I ought to  
17       say something on behalf of my customers and  
18       shareholders.

19              MS. DAVIS: Absolutely. That's where  
20       the modeling comes in, and we'll be looking at the  
21       effects of different cap levels on electricity  
22       price, on system cost, on cost effectiveness of  
23       the emissions reduction, to the loads on emissions  
24       reduction. So --

25              MR. HERTEL: No, I agree. That would be

1 most helpful.

2 MR. CAVANAGH: We'll all be intrigued,  
3 though --

4 MS. DAVIS: It's not your --

5 MR. CAVANAGH: -- where the threshold  
6 kicks in. It's pretty low now.

7 (Laughter.)

8 MR. CAVANAGH: I thought so, based on  
9 long experience.

10 MR. HERTEL: It's only because we load  
11 pay on what, 13 and a half cents a kilowatt hour  
12 in the state.

13 MS. DAVIS: And it's definitely a  
14 consideration that really needs to be looked at  
15 when figuring out the cap level that we want to  
16 recommend, you know, along with, you know, what  
17 the overall state goal might be, or -- and what  
18 other sectors can do to the cost effectiveness of  
19 this sector versus others.

20 MS. DUXBURY: Stacey, can I ask a basic  
21 question?

22 MS. DAVIS: Uh-huh.

23 MS. DUXBURY: So under this type of  
24 program, a wholesale generator that is not an LSE  
25 would not participate, but would, obviously would

1 be influenced because there would be these  
2 signals. But we would not, a company like Calpine  
3 would not be part of this trading program.

4 MS. DAVIS: Right. You'd be --

5 MS. DUXBURY: Do you have a separate  
6 comment -- we would be indirectly apart, but we  
7 would not be allocated any allowances. We would  
8 be sort of an outside player that would have to  
9 respond to what the LSEs --

10 MS. DAVIS: Right. If you're mostly  
11 selling cleaner generation, they'll have a greater  
12 incentive to buy from you. And if you're mostly  
13 selling dirtier generation, they'll have less of  
14 an incentive. But --

15 MS. DUXBURY: But we wouldn't be part of  
16 the trading program.

17 MS. DAVIS: Correct.

18 MS. DUXBURY: Or a company like ours.

19 MR. HERTEL: Well, to be clear, you  
20 wouldn't be part of the cap program. There isn't  
21 much trading in the -- you're pretty, you guys are  
22 pretty quiet about the trading aspect of this.  
23 You, you have a lot to say about the cap, but not  
24 much to say about how trading would be used to  
25 effectuate the cap.



1 MS. PULLING: Do you have, Stacey, do  
2 you have a, a ballpark figure for taking an LSE  
3 approach as, as opposed to some other slice of the  
4 power sector, what percentage of California's  
5 electricity comes from the aggregate LSEs? In  
6 other words, what's left out of this?

7 MS. DAVIS: No, but --

8 MS. DUXBURY: Well, I'm, I'm just trying  
9 to understand it, but I don't really have an  
10 opinion one way or the other. Just like where's  
11 public power, where --

12 MR. CAVANAGH: The, the LSE approach  
13 means that all the power consumed in California is  
14 under the program. Every single kilowatt.

15 MS. DAVIS: Including all of the in  
16 state power and all of the out of state power that  
17 serves California demand. It would all be  
18 covered.

19 MS. PULLING: But who's, which entities  
20 are subject to the cap --

21 MS. DAVIS: The LSEs --

22 MS. PULLING: -- as opposed to have an  
23 indirect effect from the cap?

24 MS. DAVIS: Anyone that sells directly  
25 to a consumer would be subject to the cap.

1                   MR. HERTEL: Which is the definition of  
2                   an LSE.

3                   MR. CAVANAGH: Yeah.

4                   MR. HELME: But it's, it is true that a  
5                   company, let's say you weren't a clean company,  
6                   you were a coal based merchant generator. You  
7                   could go out and buy allowances and bundle them  
8                   with your power if you were trying to sell to a  
9                   California entity.

10                  MS. DUXBURY: And market it in --

11                  MR. HELME: I mean, just like some of  
12                  the coal producers did in the SO2 program. They  
13                  went out, they were going to lose their market so  
14                  they went out and bought allowances and said all  
15                  right, we'll sell you this coal and here's the  
16                  allowances to cover it so you'll buy our coal.

17                  MS. DUXBURY: Right.

18                  MR. HELME: So there's, it's, it's a  
19                  secondary opportunity, but there's certainly an  
20                  opportunity.

21                  MS. DUXBURY: Right. So everybody can  
22                  be in the program. It's just, it's a different  
23                  way of slicing it to presumably a very same,  
24                  similar outcome.

25                  MR. CAVANAGH: But Peggy, what I want

1       you to object to is the last bullet on the page  
2       there, because, okay, Stacey, you increase  
3       potential for power, I mean, they, they said that  
4       before the sulfur trading scheme was established  
5       in the Clean Air Act, and I want to submit that  
6       that just, that ought to be now displaced as a  
7       canard. It, it's, you, you set up a trading  
8       system, you let the market figure out the  
9       solutions, there's plenty of generators out there.  
10      Peggy Duxbury could meet every kilowatt hour.  
11      The, the generators she operates are no less  
12      reliable than any, than the old clunkers that are  
13      emitting the carbon.

14               What is -- can we at least acknowledge  
15      that that last one is open for discussion in terms  
16      of whether a, a well functioning cap and trade has  
17      any effect -- it might be a positive effect on  
18      reliability. It might drive some of the old junk  
19      off the system faster.

20               MS. PULLING: I, I think it would be --  
21      I think you and Mike are both saying kind of the,  
22      the price and the reliability are both, both  
23      issues that, depending on how this was structured,  
24      could either be canards --

25               MR. CAVANAGH: No, I want to make, I, I

1 believe that this will improve power reliability.  
2 I believe that it will accelerate the replacement  
3 of aging and defunct infrastructure, and that it  
4 will leave us with a better and more reliable  
5 system. And I think that -- Peggy, I'm looking at  
6 you to see if you want to disagree with that. But  
7 I'm sort of --

8 MS. DUXBURY: Just keep talking.

9 MR. CAVANAGH: I'm sort of betting you  
10 won't. So I just want to say that one, I'm like  
11 -- Mike is probably right. In, in general, it is  
12 reasonable to say that a cap is likelier than not  
13 to increase overall costs of electricity if it's,  
14 if it's -- all on the system. But on reliability,  
15 it seems to me clear that you can go either way,  
16 and that it's wrong to --

17 MS. DUXBURY: Well, if it, if it  
18 accelerates the move to newer, more reliable  
19 power --

20 (Parties speaking simultaneously.)

21 MR. CAVANAGH: I suggest that there's an  
22 asymmetrical reliability impact.

23 MR. HERTEL: Well, there's an --  
24 relatedness, obviously. If, if you're telling me  
25 that somehow we cap, and because we're imposing

1       that threshold, somebody has to build newer,  
2       cleaner generation, I can readily say yes, Ralph,  
3       that's the case. But when they build that new  
4       generation here in California and they use natural  
5       gas, the price goes up, the reliability issues  
6       continue to get raised because now you're on the  
7       cusp of fuel reliability. You're shifting more  
8       heavily to natural gas even though we're already  
9       heavily dependent on that single fuel here in  
10      California.

11               MS. PULLING: Maybe what you could do is  
12      rather than sort of using the word "disadvantage",  
13      you could have issues, you know. Because I think  
14      that there are, there are ways that issues about  
15      price and issues about reliability need to be at  
16      least looked at in the design of this. And so  
17      maybe rather than trying to stake out it's a, we  
18      know it's a disadvantage, or we know it's not,  
19      just say we know this is an issue. We need to, to  
20      be looking at things like --

21               MR. HELME: Well, I think that's what  
22      you're saying --

23               MS. PULLING: -- fuel source. Yeah.  
24      Well, they're using the word disadvantage, and  
25      Ralph is saying that it's, it's not a

1       disadvantage, and so I'm saying well, why don't we  
2       just call it an issue, and move on.

3               MR. HELME: I think you're right, and  
4       Ralph's point is this has been brought up. It was  
5       brought up in the -- it was brought up in the NOx  
6       situation, the most recent the northeast with some  
7       of these plants that serve load pockets, and  
8       basically they never really shut down the plants.  
9       There was always a threat those plants are going  
10      to go away, you won't have low voltage support, et  
11      cetera. It doesn't really happen. But we wanted  
12      to, you know, acknowledge that this is an issue  
13      out there. There are people who raise this  
14      argument, and it's important to put it on the  
15      table.

16             MS. DUXBURY: But then, to take Ralph's  
17      point, you could put, I mean, a possible advantage  
18      is you could potentially encourage more  
19      reliability.

20             MR. CAVANAGH: Improve reliability.

21             (Parties speaking simultaneously.)

22             MS. PULLING: Why not just have a  
23      category that's called issues, and you don't --

24             MS. DAVIS: Because either you should  
25      put it as a bullet in potential advantages and

1       disadvantages, or you should make it a less  
2       weighted -- I think the other two bullets make  
3       sense.

4               MR. HERTEL:  It's a rhetorical semantic  
5       debate here.  We should move on.

6               MR. CAVANAGH:  We should, we should move  
7       on, but it's more than rhetorical and semantic,  
8       Mike, because it is important to see that in fact,  
9       on reliability, at least, because this will be a  
10      crucial question in terms of where we all I  
11      suspect end up on the merits of a cap, there, the  
12      argument I'm making, it ain't semantic, is that  
13      it's at least as likely to improve reliability as  
14      degrade it, depending on how people respond.  And  
15      I just -- we should remain open to that  
16      possibility.

17              MR. HERTEL:  Well, Ralph, that, I, I can  
18      stipulate to that, but you have to give me the  
19      terms and conditions, and you never do.  You never  
20      tell me how much, how fast.

21              MR. CAVANAGH:  But we will.  We will.

22              MR. HERTEL:  If you try to go past  
23      replacement of power quickly, then I will tell you  
24      that the risk for reliability gets exacerbated  
25      dramatically, dramatically.  If you give me two

1 decades, three decades to buy the power from  
2 wonderful companies like Calpine, then probably I  
3 can make that adjustment.

4 MR. CAVANAGH: Oh, she can move faster.  
5 I just, she just showed you, in 12 years the  
6 utility sector reduced its sulfur emissions by 40  
7 percent.

8 MR. HERTEL: Sulfur is not the same  
9 thing.

10 MR. CAVANAGH: It's not, but it's still,  
11 it's a useful thing to remember. It was, it was  
12 an achievement that some thought at the time was  
13 impossible.

14 MR. HERTEL: Some of us didn't.

15 MR. MEACHAM: Ralph said it in kind the  
16 example. Then you can kind of split them out. I  
17 think that, that I, and maybe you don't understand  
18 it, but the real obvious advantage seemed to be to  
19 replacing an existing operating single cycle gas  
20 plant, you know, or, you know, or, you know, going  
21 to a combined cycle plant in the same region.  
22 This provides an incentive for doing that. How  
23 can that not be a benefit to reliability? And,  
24 and at the same time, reduce emissions in that  
25 scenario, which I think was the example that Ralph



1       used. I don't see how that, you know, that is a  
2       downside. now --

3               MS. DUXBURY: Which isn't a two to three  
4       decade goal for the state. I think it's a much  
5       more, it's a faster goal, and a very realistic  
6       goal.

7               MR. MEACHAM: So at least on the  
8       advantage side, if you were, you know, kind of  
9       splitting that idea out, it may not be total  
10      reliability, but the idea of repowering existing  
11      older, you know, single cycle plants or, or less  
12      efficient plants, it is an incredibly positive  
13      advantage.

14              MR. HERTEL: Well, we're all for  
15      repowering. But again, you have to, you have to  
16      at least look at the potential permitting problems  
17      associated with that. I don't know how we can  
18      build new peaking generation in the South Coast  
19      Air Quality Management District right now. I  
20      don't know where we would get all of the PM  
21      emissions, especially, that we need to offset  
22      that. I don't see -- we're going to build it,  
23      mind you. We're going to buy it from somebody. I  
24      don't know how they're going to build it.

25              Michael, it's not as simple as, as we

1       often tend to make it by, by cutting off the tails  
2       of problems and suggesting they don't exist.  If  
3       you say there's no reliability impact -- and one  
4       of the things I, I would like you to do is examine  
5       the feasibility and practicability of building  
6       that generation where it needs to go.  And the  
7       answer to that is right now, from an air quality,  
8       conventional air quality standpoint, it's very  
9       problematic.

10               MR. MEACHAM:  I, I agree with you that  
11       it is complicated and not simple.  And I think one  
12       of our goals is to try to make recommendations  
13       that help simplify it and get the rules out of  
14       your way so that you can do it.  And I thought  
15       this was one example where that could happen in a  
16       very positive way.

17               MR. HERTEL:  Well, it's kind of a  
18       sledgehammer way of accomplishing that end, I  
19       would suggest.  But we've done that to ourselves  
20       before, so it's possible.

21               MR. HELME:  But we've seen in designing  
22       these programs in the past where these issues come  
23       up, in the, in the case of NOx -- ABC gave more  
24       allowances to areas that argued that they were  
25       having reliability problems.  The upper Great

1       Lakes, the midwest got extra allowances. So, and  
2       in the original SO2 program we had a liquidity  
3       fund, the option of last resort, where you buy  
4       allowances. You couldn't get them anywhere else,  
5       you could do that. And certainly with CO2, since  
6       we don't care about health effects, there's no  
7       health effects involved here, you can set up  
8       something.

9               So if, if the group thinks -- some, some  
10       of the group thinks it's a problem, some think  
11       it's not, there's a way to finesse this by  
12       everybody just saying okay, we'll set aside a  
13       portion of the allocation, take care of areas that  
14       might be reliability constrained by this program,  
15       and it's there if you need it and it gets us away  
16       from having this be a barrier to setting up a cap  
17       and trade, because it's not really. It's  
18       something we can take care of.

19              MR. MARGOLIS: Mike, let me, let me say  
20       something and see if I can get you to agree to it.  
21       If --

22              MR. HERTEL: Probably not.

23              (Laughter.)

24              MR. MARGOLIS: If we have a cap and  
25       trade program, it's, we're only going to have it

1       if we have a mandate, if there's, you either do it  
2       this way or you do it a cap and trade way. So you  
3       have a number of choices. And if you have a cap  
4       and trade program it's because there's a mandate.  
5       There's some requirement. Whether it's, it's  
6       imposed from on high or there's a requirement, but  
7       we can't impose that requirement. This  
8       committee's not going to do that. All right.

9               So would you agree to the following  
10       statement, that if you, if you do, if you have a  
11       mandate and you decide you have a problem you want  
12       to solve, if you design a cap and trade program to  
13       consider all of these concerns, and if it's a  
14       well-designed program, that your concerns are  
15       addressed?

16              MR. HERTEL: All of these concerns?

17              MR. MARGOLIS: All of these concerns  
18       that you brought up.

19              MR. HERTEL: Well, I haven't brought  
20       them all up yet.

21              (Laughter.)

22              MR. MARGOLIS: But yes, of course.

23       That's -- you know --

24              MR. HERTEL: It doesn't say much, to be  
25       bold about it, Josh. It, it certainly, if, if we

1 all sit down and we bring every single concern to  
2 the table and we design a fix around it, would I  
3 be satisfied, would my customers be satisfied and  
4 protected, would my shareholders be satisfied and  
5 protected, sure. Let's get at it.

6 MR. MARGOLIS: And, and we can imagine  
7 all the bogeymen that are under the table, but  
8 it's, I think --

9 MR. HERTEL: No, I'm not imagining  
10 bogeymen. I, I don't want to go down that road.  
11 But yes, if, if we tackle the set of concerns, and  
12 as I said to Ned a little bit earlier, in a  
13 sidebar, I have a lot of problems with these  
14 suggestions, but one thing I appreciate greatly is  
15 that CCAP is doing an objective review of it and  
16 pointing out that there are pros and cons. You  
17 can always design around the cons, but designs  
18 sometimes have costs associated with them, and we  
19 need to look at those matters.

20 MR. MARGOLIS: But we shouldn't stop --

21 MR. HERTEL: Absolutely.

22 MR. MARGOLIS: -- we shouldn't stop the  
23 discussion based upon one bullet.

24 MR. HERTEL: No. And I, I didn't start  
25 that stopping. But once it started to stop, I

1       decided to jump in.

2                   (Laughter.)

3               MR. CAVANAGH:   Onward.

4               MS. DUXBURY:   Next slide, please.

5               MS. DAVIS:   As long as you go into some  
6       of these issues in more detail.

7               Contract shuffling is, is a legitimate  
8       form of compliance that we are trying to encourage  
9       with the design of this program.  You know, we  
10      want LSEs to buy lower emitting power over higher  
11      emitting power.  There's just a risk that in doing  
12      so, if compliance is exclusively focused on this,  
13      you might just have a shuffling of existing  
14      contracts within the western grid such that all of  
15      the clean power in the west goes to California,  
16      and there's no net change in emissions.  That's  
17      sort of the worst case.

18              MR. HELME:   You mean on a regional  
19      level.

20              MS. DAVIS:   Uh-huh.  Yeah, California  
21      will be buying the cleaner power, but, you know,  
22      with, with no ultimate benefit.  And, of course,  
23      it depends on where the cap is set, and there  
24      might be ways to restrict contract shuffling,  
25      which I'll get into later.

1           The kinds of contract shuffling that you  
2   might want to prevent is the potential for double-  
3   counting of renewable resources, and this seems  
4   like it's something that's probably fairly  
5   straightforward with RECS. Make sure that you  
6   only sell renewable power once to meet the  
7   California cap and, you know, the California RPS.  
8   But you can also sell it to Colorado or Arizona,  
9   or somewhere else, to meet some renewable issue in  
10  those other states.

11           The other thing is, which is a little  
12  bit tougher, is to try to prevent the sales of  
13  resources that are technically impossible to  
14  actually deliver to market based on the limits of  
15  transmission lines. And that's something that we  
16  can look at, but might be a little harder to  
17  address.

18           The second challenge or issue is in  
19  terms of tracking and monitoring emissions. As we  
20  know, electrons themselves, you know, they're,  
21  they're not tracked and you can't determine which  
22  electron gets to which end user. But you might be  
23  able to track the contract path, and that's what  
24  we're looking at here. Power from a given unit is  
25  sold to someone and ultimately gets to an LSE,

1       which gets to an end consumer, and that's the path  
2       that we're trying to, to look at.

3               It's not easy, you know, there's, there  
4       are a lot of resales of power, et cetera, but this  
5       is done in the renewable context with RECs for  
6       renewable generation, and, and there's no reason  
7       why you couldn't extend that to others.

8               Emissions attributes of power in the  
9       west are currently not tracked, although in New  
10      England they do have tracking for, for CO2 and  
11      other emissions, as well.

12              A third issue is power reliability.  
13      We've identified several possible ways that there  
14      could be reliability issues associated with a cap  
15      on emissions associated with power demand. We  
16      haven't done anything that would indicate whether  
17      this is a big issue or a small issue, or how  
18      important, et cetera. But it's possible that  
19      changes in power purchases constrains certain  
20      transmission lines that weren't previously  
21      congested. It's possible that a cap could lead to  
22      reduced generation by plants that are relied on  
23      for voltage support. And there's a risk that  
24      insufficient new, clean generation will be built  
25      to meet a cap because the incentives are a little



1 bit more indirect to the, to the generators.

2 There's no reason to think that the cost  
3 incentives wouldn't be passed on, but, but it's  
4 just something that I'm pointing out because the  
5 incentive is more indirect.

6 So the first, I'm going to go through a  
7 series of design issues that we've been thinking  
8 about, some of which address the issues I just  
9 mentioned, and some of which are, are just other  
10 things you need to think about.

11 The first is setting the cap level.  
12 Considerations include cost issues, the cost per  
13 ton, the total system cost, the energy,  
14 electricity, energy, you know, natural gas price  
15 issues. There are lots of costs that can be  
16 looked at in terms of deciding if this is  
17 acceptable to the state. And public perception  
18 and, of course, emissions reductions needed to  
19 meet whatever goal is established. And then,  
20 modeling, as I mentioned, will help us look at  
21 those effects of different cap levels.

22 And you might envision, you know,  
23 different decision rules that might be used that  
24 think about how to set the cap. For example, you  
25 could maximize mitigation such that costs stay

1       within a reasonable range. There are other ways  
2       to look at it. If, if you think that there really  
3       aren't that many emission reduction opportunities,  
4       you can set the cap at a level that would address  
5       primarily, you know, new generation and make sure  
6       that those are cleaner than, than not.

7               MR. HERTEL: Before you leave that  
8       slide, I would appreciate offline more -- or  
9       someplace, if, if you folks could tell us how  
10      you're going to revise NEMs to understand the  
11      implication of, of these different cap levels. As  
12      you pointed out, modeling a generation based cap  
13      system is doable and has been done. As far as I  
14      know, no one's modeled a, a proposed demand based  
15      cap, and I understand that RGGI talked about doing  
16      that in the past and, and decided that the  
17      difficulty of, the complexity of modeling that  
18      kind of a system and trying to make the necessary  
19      assumptions made it virtually impossible, and went  
20      back to their generation approach.

21              So I would, I would at least appreciate  
22      offline some sort of more detailed explanation of  
23      how that's going to work.

24              MS. DAVIS: I'd be happy to, to tell you  
25      all about it. And maybe we --

1                   MR. CAVANAGH:  Although, I think for my  
2                   colleagues it's important, and you may not realize  
3                   this, the, the difference in the way that the  
4                   utility system is organized in the northeast  
5                   compared to the west is, is, I think, really, the  
6                   crux of why they went a different way.  In the  
7                   northeast, most utilities no longer have resource  
8                   portfolio management responsibilities for their  
9                   customers.  It's a system which is trying to drive  
10                  toward a retail competition model that's not much  
11                  more, or remembered in this room, although we had  
12                  some good experience with it.

13                  But the point is they don't have the  
14                  infrastructure to do a load based cap in the  
15                  northeast, by and large.  They don't have  
16                  utilities that have the traditional responsibility  
17                  of creating a portfolio to serve their customers.  
18                  And I think that was the principal reason they  
19                  went to a generation base.

20                  MR. HERTEL:  I don't, I don't know.  I  
21                  just know that --

22                  MS. DUXBURY:  Actually, we were pretty  
23                  involved in that --

24                  MR. CAVANAGH:  We are very much involved  
25                  in it.

1           MR. DUXBURY: As was, I mean, we were  
2           very involved in the RGGI process, and there's  
3           just not the same LSE model in the New England  
4           states as there is --

5           MR. HERTEL: I do know that now, though,  
6           it looks like the difficulty that they're having  
7           in trying to set a cap is, is getting them to  
8           reduce the amount of the cap in order to prevent  
9           the leakage problem, which is certainly something  
10          that's common with our system.

11          MS. DAVIS: We get just a plain issue  
12          that, that they're dealing with, as well, and  
13          you're right, they haven't modeled it. Neither do  
14          they indicate a planning model which they're  
15          using, nor NEMS, and in the past there's been used  
16          to model a cap on emissions associated with power  
17          demand. We're rebuilding the model so that we  
18          have two different regions, one sort of the  
19          California demand region, and the rest of the  
20          western grid. And, and all of the power can  
21          choose to sell to one or the other, and, and  
22          that's what's being done now. And we can tell you  
23          more of the details of that.

24          MR. HERTEL: Appreciate that.

25          MS. DAVIS: Some of the options for

1 tracking emissions and monitoring compliance.  
2 Essentially, we'd either need a new system  
3 altogether or to build on the Western REGIS system  
4 as it now stands. Currently, the Western REGIS  
5 program only looks at renewable energy. It's a  
6 certificates-based system to track and verify  
7 renewable energy generation in the west. The RECs  
8 don't separate out the emissions attributes from  
9 the renewable attribute. It's all in one, which  
10 is probably okay, but it doesn't, it's not  
11 expanded to the non-renewable generation and it  
12 would need to be. And, and we'd just separately  
13 track the actual emissions from, from the other  
14 sources of, of low emitting and high emitting  
15 generations that you can sell those attributes  
16 along with the power.

17 So to expand the WREGIS program, you  
18 need to include all of the sources, all units  
19 selling power to the western grid, and include the  
20 unit level CO2 reporting and make sure that that's  
21 tracked, being sold along with power. And --  
22 this, as I mentioned, and New England does  
23 currently track the emissions attributes, but it's  
24 not currently used, and they're only using their  
25 program also for renewable portfolio standard

1 compliance.

2 MR. CAVANAGH: And everything over 25  
3 megawatts reports its CO2 emissions; right? So  
4 this is just a matter of getting that system to  
5 track it.

6 MS. DAVIS: Right. And, and there may  
7 be some barriers to doing that within the Western  
8 REGIS program. I mean, I don't know how much  
9 interest there is, you know, beyond California to  
10 extend the program. You know, that's something  
11 that will need to be resolved, and I'm interested  
12 in your, your thoughts on, on how that would be,  
13 how that would be done.

14 MR. CAVANAGH: Well, Stacey, the quick  
15 response, of course, is that if, if the California  
16 utilities made clear that they need that  
17 information, and that if they didn't have it they  
18 would have to assign a relatively high default  
19 value to the power that was coming in, my guess is  
20 the problem would be solved very quickly.

21 MS. DAVIS: Some ideas for reducing  
22 undesirable contract shuffling. You could require  
23 RECs to accompany, or low emission attributes,  
24 otherwise, to accompany power sales, which would  
25 avoid double counting and also help reduce the

1 possibility for some of the unrealistic power  
2 sales, because it's coming with the power and  
3 there are other things that go into that decision.

4           You could consider a separate study of  
5 transmission line capacity and decide, you know,  
6 during this peak period did more power come  
7 through than is technically possible, and if so,  
8 you know, figure out some rules to essentially say  
9 that not all of that power can count towards,  
10 towards the cap. And you can assume, and this is  
11 something that probably has some structural  
12 barriers, but you can assume that imports meet a  
13 system average emission rate, eliminating the  
14 incentive to structure -- to shuffle contracts  
15 altogether. If you do that kind of a broad-based  
16 program, where all imports are subject to this  
17 rule and not in-state generation, you, you're  
18 probably running counter to the interstate  
19 commerce clause, since you're treating those  
20 sources differently.

21           It also happens then, fail to send the  
22 desired signal to, to generators that, or the  
23 LSEs, that you do actually want to buy the lower  
24 emitting power rather than the higher emitting  
25 power. You wouldn't have any way to discriminate

1       that.  So --

2               MR. CAVANAGH:  Stacey, I'm sorry.  That  
3       raises a question that I hadn't thought of before.  
4       Are you folks restricting this idea to a certain  
5       length of contract, or are you meaning to cover  
6       system contracts and spot contracts, and hour to  
7       hour contracts, and contracts -- what?

8               MS. DAVIS:  Well, we were thinking that  
9       all contracts could be covered.  And obviously,  
10      covering spot market contracts has its own  
11      wrinkles.  So the thing, we talk about that a  
12      little bit in the paper, and that, you know, you  
13      could either do that by, you know, sort of tiering  
14      your spot market and having a low emitting, a  
15      medium emitting, and a high emitting spot market,  
16      and you'd have to decide where to sell.  And, you  
17      know, this would allow --

18              MR. HERTEL:  So again, there are fixes.  
19      As the complexities arise, you could find ways to  
20      deal with those problems.

21              MS. DAVIS:  Or, as Ralph suggests, you  
22      can, you know, just say a portion of the spot  
23      market based on historical numbers is not subject  
24      to the program.  I mean, that's another way to do  
25      it.  Or you could assume that everything in the



1 spot market is high emitting and encourage low  
2 emitting resources to have longer term contracts  
3 with the LSEs. So, and there, there are different  
4 ways to, to look at those issues. And presumably  
5 for every type of contract, and I don't, I'm not  
6 familiar, or I can say with all of them, you know,  
7 there are different fixes that might be used so  
8 that they could be --

9 MR. HERTEL: I'll only comment that it's  
10 a very complex deal.

11 MR. CAVANAGH: Well, but the -- a  
12 glorious simplification was suggested by Edison  
13 itself, when the --

14 MR. HERTEL: Yes.

15 MR. CAVANAGH: -- when the Commission  
16 adopted its policy on assigning dollar values to  
17 greenhouse gas emissions, which was focused on  
18 commitments of greater than five years' duration.

19 MR. HERTEL: Because what we're really  
20 looking at is trying to change the fuel mix, the  
21 plants that are built as capital decisions are  
22 made.

23 MR. CAVANAGH: And on this one, I agree  
24 with you. And I think it would, we ought to look  
25 at a cap approach.

1 MR. HERTEL: Don't stop now, Ralph.

2 (Laughter.)

3 MR. CAVANAGH: We ought to look at an  
4 approach that focuses on long-term decisions and,  
5 and commitments, as opposed to spot market.

6 MS. DAVIS: And while I mentioned that  
7 use of average emission rates for the whole  
8 western grid probably some interstate commerce  
9 clause problems, that doesn't mean that we don't  
10 want to use default rates altogether. There may  
11 be some rules for that, as Ralph suggests, in  
12 terms of encouraging the, the development of a  
13 tracking system that would be needed to allow for  
14 this program to move forward.

15 MR. HERTEL: And do you cover that, that  
16 little legal issue later?

17 MS. DAVIS: Uh-huh.

18 MR. HERTEL: Good.

19 MS. DAVIS: Some thoughts on addressing  
20 reliability. There could be some kind of a  
21 companion program that's related to capacity  
22 markets, for example, that would simultaneously  
23 encourage penetration of the new low emitting  
24 resources that we want to make sure are encouraged  
25 under this program, and make sure that the

1 indirect incentives also have another route. Or,  
2 or to provide voltage support or address any  
3 transmission constraints, et cetera. So some kind  
4 of companion program could be developed to address  
5 some of those issues, although there may already  
6 be adequate reliability rules and resource  
7 adequacy requirements in place that would cover  
8 those issues, and that's something that this group  
9 can decide.

10 There are also a lot of options for  
11 enhancing compliance flexibility under the program  
12 that would also, you know, make it less likely to  
13 have reliability issues on the, in the short term  
14 that some might fear. Use of emissions trading  
15 and, and banking are important offset systems, or  
16 expansion of the trading system to include other  
17 sectors could provide a lot of liquidity and  
18 flexibility. Long lead times and long averaging  
19 periods, we're thinking maybe a five-year  
20 averaging period, might be considered since, you  
21 know, these emissions don't have a local or --  
22 the, the time of the carbon emissions don't matter  
23 as much as the total emissions.

24 And the use of price caps or circuit  
25 breakers, or other kinds of tools, these, of

1 course, would affect the integrity of the cap  
2 itself, but it could limit, you know, the very  
3 high prices that people might fear.

4 Allowance allocation is another design  
5 issue, and it's not one that I'm going to go into  
6 in much detail. But the same kinds of issues  
7 apply, and the California emissions associated  
8 with demand context would be under a cap on  
9 generation. You still have the grandfathering and  
10 the, the updating and the auction approaches, and  
11 you can do it on an input basis, you can do it on  
12 an output basis. You know, there is potentially a  
13 high value to these allowances, and so it's not --  
14 now they're allocated. There are equity concerns,  
15 you know.

16 There are also issues with respect to  
17 overcompensating the industry. There's been some  
18 work done at the national level where, you know,  
19 it, it's possible to give only nine percent of the  
20 total allowances to compensate shareholders under  
21 a national cap and trade program that's pretty  
22 stringent, although that's under a case where the  
23 caps are stringent. The value of the allowances  
24 are coincidentally higher. Of course, the value  
25 of the allowances will depend on the stringency of

1 the cap in this case. But, but potentially, it is  
2 a pretty high value, and we'll want to look at  
3 that carefully.

4 In terms of the differences between the  
5 cap on emissions associated with demand versus the  
6 cap on generation, the one wrinkle is that if you  
7 do an input based allocation you're going to need  
8 to collect a whole 'nother set of data from all of  
9 the generators, and that's the amount of -- the  
10 coal Btu content. So -- or, or fuel Btu content.  
11 And that might add another level of complexity.  
12 But apart from that, you know, it's pretty much  
13 the same set of issues.

14 MS. PULLING: I'm not sure if we've  
15 talked at all about baseline. We're assuming that  
16 that's part of the allowance allocation --

17 (Note: Background noise interrupting.)

18 CHAIRPERSON BOYD: Wendy, could you move  
19 closer to mic, and we'll drown out, you'll cut  
20 out --

21 MS. PULLING: I'll cut out the  
22 interloper.

23 CHAIRPERSON BOYD: They said no.

24 (Laughter.)

25 MS. PULLING: I'll try to, I'll try to

1       drown her out.

2               Stacey, my question was just about  
3       baseline and whether that's implicit in the, in  
4       your previous slide on allowance allocation.

5               MS. DAVIS: It's not implicit. It's a  
6       different issue. And we've actually run a  
7       reference case at this point a, a revised one.  
8       Last meeting I presented a preliminary reference  
9       case. Unfortunately, we haven't fully vetted the  
10      results, so I'm not going to be sharing them with  
11      you today, but we, we will in the next.

12              MS. PULLING: But it's an issue that you  
13      are considering.

14              MS. DAVIS: Well, the baseline is  
15      something that we generated by the model  
16      essentially, using the assumptions that we've all  
17      agreed to. And we'll find out what that is.

18              All right. Well, talking over the, the  
19      side conversation, another issue that we're  
20      looking at is linking, and linking with other  
21      programs does provide a liquidity benefit,  
22      potentially improves the cost effectiveness of the  
23      program, and so it's something for those reasons  
24      we'll want to consider. As I mentioned earlier, a  
25      ton of CO2 is the same as a ton of CO2. Under a

1 cap on emissions it'll save demand, or under a cap  
2 on generation, so there shouldn't be any problems  
3 in linking those two types of programs.

4 That said, if you're talking about  
5 California doing one type of program and Oregon  
6 and Washington doing another, there, there may be  
7 some real problems because you'd be double-  
8 counting a lot of the resources. So if California  
9 goes with a cap on emissions associated with  
10 demand, I would suggest that neighboring states  
11 would need to, as well. They need to be  
12 compatible.

13 MR. PARKHURST: Since Oregon and  
14 Washington have completed their studies, do we  
15 know what they're considering?

16 MS. DAVIS: I don't know what they're  
17 considering.

18 MR. CAVANAGH: Yes, and they -- yes,  
19 this is exactly what they're considering. So  
20 Oregon and Washington are on the same page with  
21 us, because they view utilities the same way we  
22 do. But the good news is, I mean, we're not  
23 connected to RGGI electrically at all. We could  
24 trade back and forth with RGGI. The, the sister  
25 states in the west that are looking at the same

1 approaches will go the way we go on it.

2 MS. DAVIS: And overall, and we, we're  
3 looking at a, a cap program that affects, you  
4 know, just a portion of the United States, and  
5 obviously it would be better to do a national  
6 program, but short of that, you know, we're doing  
7 -- this is probably a better design for this state  
8 and, and potentially for this region.

9 MS. MICHELSON: And, and I understand  
10 that. But when we look at harmonization of the  
11 programs worldwide, we want to build that into the  
12 system up front, if that's one of the design  
13 issues.

14 MS. DAVIS: And I don't see a problem  
15 with it, as long as we, we're not having adjacent  
16 states or -- using different programs. I think as  
17 long as it's sort of a unique defined region,  
18 it'll be okay, because you'll still have, you'll  
19 be able to evaluate the program stringency of RGGI  
20 versus the California program, and, and be able to  
21 determine whether it's appropriate for them to  
22 sell to each other. But, so you're still trading  
23 a ton of CO2 in each case, and, and it should be  
24 the same commodity.

25 MS. MICHELSON: Okay. Thanks, Stacey.



1 MS. DUXBURY: I'm sort of struggling  
2 with that, too, Denise. It's basically we need a  
3 currency conversion, in a way.

4 MR. CAVANAGH: No, you don't.

5 MS. DUXBURY: You don't need --

6 MR. CAVANAGH: A ton is a ton.

7 MS. DAVIS: When we do this

8 benchmarking --

9 MS. CAVANAGH: You need a hard cap.  
10 You've got to make sure you --

11 MS. DUXBURY: We have the hard cap. I  
12 get that. I'm just trying to make, understand how  
13 we would then trade with RGGI.

14 MR. CAVANAGH: RGGI has a hard cap, we  
15 have a hard cap, a ton of carbon dioxide means  
16 exactly the same thing under both systems.  
17 There's no translation, there's no conversion.

18 MR. HERTEL: Or, for that matter, the  
19 EU.

20 MR. CAVANAGH: Yeah.

21 MS. DUXBURY: Right.

22 MR. HERTEL: If they'll trade with us.

23 MR. CAVANAGH: Just a question it might.

24 MS. DAVIS: And it's possible that if  
25 RGGI determines that the California program is not

1 as strict as theirs, or vice-versa, you know,  
2 there could be some discounting of one or the  
3 other in order, you know, you might not consider a  
4 full RGGI allowance as a full allowance in the  
5 California cap. I mean -- that kind of thing is  
6 possible, but, but essentially they're the same  
7 commodity, so there shouldn't be any immediate  
8 problems in trading.

9 MR. HELME: The only, underlying  
10 Stacey's point, the only place where this becomes  
11 a problem, Denise, is if you had Arizona or Utah  
12 doing a traditional generation cap, and so then  
13 you'd have a different treatment of potentially  
14 the same plants if they're selling into this  
15 market.

16 MS. DAVIS: Right. And --

17 MR. HELME: But as long as we're not  
18 talking about an adjacent state that's in the same  
19 power market, there's no issue at all. It's owed  
20 ton for ton.

21 MS. MICHELSON: Well, so you're saying,  
22 and I don't understand the, the grid system, but,  
23 but as I understand what you just said, that means  
24 that, like, Utah's not producing into the state  
25 and Arizona's not producing into the --

1           MR. HELME: Well, if you had a program,  
2           if Utah when, three years from now did their own  
3           program and said we're going to do it on our  
4           plants generation-wise, and they were also selling  
5           into California, then it could get complicated.  
6           But otherwise, there's no issue. Now, ostensibly,  
7           if you got this thing rolling and get three states  
8           in, they want to play, they're, they're going to  
9           design defaults --

10          MS. MICHELSON: But then if this rolls  
11          out eventually across the lower 48, how does that  
12          play out?

13          MR. HELME: I think you get a federal  
14          bill at that point.

15          MR. CAVANAGH: It's a lot more  
16          complicated. But the, you'd want the western  
17          interconnection. I mean, let's just -- we know  
18          how the power grids -- you want the western  
19          interconnection to be consistent. And then you  
20          would like, ideally, to have the northeast be  
21          consistent and you'd like Texas to do whatever the  
22          hell it's -- I mean, there's three grids. There's  
23          three grids. And, and the policies we're  
24          discussing affect two completely independent  
25          grids.

1                   MR. HERTEL: Yeah, but I guess Denise's  
2 point should be free sprained, and that is -- and  
3 I agree with you, Ralph, you'd want the western  
4 energy coordinating council to be playing by the  
5 same rules. And the, and the fact of the matter  
6 is we, we cannot guarantee, maybe we can  
7 influence, but we cannot guarantee that other  
8 states in those regions will adopt such rules, and  
9 if they do, whether they'll be completely  
10 consistent with the way you design your system.

11                   So as I take Denise's argument, it is  
12 that all of the other systems addressing climate  
13 -- and I stand to be corrected on this -- but in  
14 the world, so far, are generation based systems.  
15 And so we just ought to be aware there may be  
16 others, the dominants, dominant ones so far as  
17 considering generation cap. So we ought to be  
18 aware of that fact. It doesn't sell it one way or  
19 the other. It's just another complexity to the,  
20 to the problem.

21                   MR. HELME: We have it now. Canada  
22 hasn't got their program quite implemented. But  
23 theirs is going to be a reductions program rather  
24 than an allowance program, and they'll be able to  
25 trade with the EU by trading the AAU's or in the

1       -- protocol. But if you have them right next to  
2       each other, it's really a very different animal.  
3       It's not a ton for ton at all. It's a sort of  
4       intensity sort of thing.

5               So they are the -- they're a good  
6       example. That's one where there'll be two real  
7       country programs that'll be able to trade with  
8       each other, even though they're quite different in  
9       structure.

10              MR. HERTEL: And by the way, we do  
11       import quite a bit from Canada too, so that's  
12       something to keep in mind.

13              MS. PULLING: Maybe another way of  
14       saying what, what I think Denise and Mike are  
15       saying is that there is some inherent risk for  
16       California, California, Oregon, Washington,  
17       proceeding without national legislation. Many of  
18       the businesses at this table are on record  
19       supporting a national cap and trade, including  
20       PG&E. It doesn't mean that we would or wouldn't  
21       necessarily support a more regional approach, but  
22       I think there is some risk that proceeding with  
23       something that we all design ourselves, as much as  
24       we might try to link it up, eventually when  
25       there's a national system, you know, we hope it's

1 the one that we've come up with. But --

2 MR. HERTEL: Put, put another way. It,  
3 one of the issues that I have is that the logic  
4 escapes me here. It seems to me that -- well,  
5 I'll go back to the, the trading issue, which I  
6 think Josh will be interested in, but -- because  
7 I, I'm a fan of trading.

8 But it seems to me that this, it seems  
9 to be designed to, to deal with emissions from  
10 power imports into California. And you say that  
11 the reason we wouldn't want to go at a generation  
12 based regional cap and trade system is because of  
13 the political difficulty of accomplishing that.  
14 So to, to overcome that difficulty, we're going to  
15 design this system, which I, I hope everyone will  
16 see is slightly complex, to put it mildly, and we  
17 will hope that that shoot yourself in the foot  
18 strategy will get other states to, to model  
19 themselves on our system.

20 And it seems to me to be more  
21 forthright, if we're going to do something about  
22 climate regionally, that we first attempt to go to  
23 these other states and say look, there is a  
24 climate problem. If you're going to be developing  
25 coal we'd like to see you develop clean coal.

1       We'd like you to join a regional cap and trade  
2       system and see where we go with that. I mean, at  
3       the same time we're discussing this, the governor  
4       yesterday announced the frontier line. Half of  
5       6,000 -- well, half of the 12,000 megawatts  
6       purportedly that would be shipped into California  
7       with this, this line, will be coal base.

8               MR. MEACHAM: Clean coal.

9               (Laughter.)

10              MR. HERTEL: Yes. If people build clean  
11      coal. So if it's not -- there's going to be a lot  
12      of people building pulverized coal plants in  
13      Wyoming. And we're a fan of IGCC, as Ralph may  
14      remember.

15              MR. CAVANAGH: I do.

16              MR. HERTEL: We were the first developer  
17      of IGCC in this country.

18              MR. CAVANAGH: The world.

19              MR. HERTEL: So, now, it's not, it's not  
20      that I say these things in a completely  
21      disparaging way. But the simple logic is if, if  
22      generation based caps are more fungible, that is,  
23      easily spread across the globe, if they're easier  
24      to manage, if the cost administration is lower,  
25      and the objective response is we can't do that

1       because the others won't go along with us, then I  
2       don't know why they would go along with system  
3       like this, which is much more complex and much  
4       more difficult.

5               MS. DAVIS: Well, the point is that they  
6       don't --

7               MS. DUXBURY: More complex, or just  
8       different?

9               MR. HERTEL: No, not different.

10              MS. DUXBURY: I'm not -- I'm --

11              MR. HERTEL: Much more complex.

12              MS. DUXBURY: I'm not, I mean, and  
13       complex isn't the same as shooting yourself in the  
14       foot. It's just we're trying to build a slightly  
15       different model using the same --

16              MR. HERTEL: No, you're trying to build  
17       a very different model, Peggy, a very different  
18       model. Because the one little bullet that we  
19       glossed over there is that it's difficult to track  
20       electrons, what also needs to be said is that  
21       electrons flow to the load center. Regardless --  
22       assuming there's transmission available, they flow  
23       to the load center. So we could have the unhappy  
24       situation of paying a lot of money for these  
25       contracts, but find that plants are built, coal



1 plants are built in these other states and the  
2 electrons flow from those anyway.

3 It's, there's no way to stop that.  
4 That's physically impossible. So when you try to  
5 build a system like that throughout the western  
6 states, it is much more complex than saying on a  
7 generation based system, as Ralph put it in his  
8 little paper, a project based approach, you have  
9 much more, a much higher level of ability to, to  
10 monitor those things, and therefore, of course,  
11 program them. And there's no sense in building a  
12 program that you can't enforce.

13 MR. HELME: But I think the, the key  
14 reason I think Stacey comes down where she does in  
15 this analysis is that if you went for a generation  
16 system here in California, you basically would  
17 just be capping mostly clean plants, not much to  
18 do with it.

19 MR. HERTEL: That's why you have to do  
20 it regionally.

21 MR. HELME: You have huge leakage in  
22 terms of any cap on gas plants in California where  
23 you'd need to buy power from elsewhere, and  
24 it's --

25 MR. HERTEL: Absolutely.

1                   MR. HELME: So you've got leakage in  
2 spades.

3                   MR. HERTEL: Right.

4                   MR. HELME: This program, the beauty of  
5 this is there's no leakage. Unlike the northeast,  
6 where we have all these fights about is it going  
7 to be wiped out by leakage to Ohio and  
8 Pennsylvania. This one, at a minimum, the worst  
9 case is you simply stay where you are.

10                  MR. HERTEL: Absolutely.

11                  MR. HELME: And on the plus side, you  
12 get some reductions.

13                  MR. HERTEL: It does that, but that  
14 wasn't my point, and I wasn't clear. My point was  
15 your logic for going to this system is to prevent  
16 the leakage issue. Or mitigate it.

17                  MR. HELME: And ensure that you have a  
18 chance of getting some real reductions.

19                  MR. HERTEL: Right.

20                  MR. HELME: The other way you got no  
21 chance.

22                  MR. HERTEL: Whereas if you did a  
23 regional cap and trade program that's generation  
24 based, I submit that problem would be resolved.

25                  MS. DUXBURY: But I think the idea that

1 we could do a regional cap and trade would be --

2 MR. HELME: Eleven states --

3 (Parties speaking simultaneously.)

4 MS. DUXBURY: So Michael, I think the  
5 problem here is --

6 MR. HELME: The thing's over, you know.  
7 I mean, everybody has to play or, or nobody plays.

8 MS. DUXBURY: Michael, we're not going  
9 to get Wyoming and Idaho, realistically, into this  
10 type of a program --

11 MR. HERTEL: Then why is it going to go  
12 along with this?

13 MS. DUXBURY: -- because I don't think  
14 that the political -- California has made a  
15 decision in various political forums that they  
16 want to take a leadership role in CO2. I think  
17 that there are other states in this region who  
18 have a different perspective on that right now,  
19 so --

20 MR. HERTEL: Right now that's true,  
21 but --

22 MS.DUXBURY: And I don't see that  
23 changing in the next three to five years, or in  
24 the timeframe that we are all trying to wrestle  
25 with this issue.

1                   MR. HERTEL: Yeah, but the logic, the  
2                   theoristic logic here is that we should do a  
3                   demand based cap in order to model and bring the  
4                   other states in, because the force of our market  
5                   will accomplish that. That's a very questionable  
6                   proposition, I submit.

7                   MS. DAVIS: I don't think that's the  
8                   overall goal of this program. The goal is to  
9                   establish a cap program that affects the emissions  
10                  from the demand that's in California right now.

11                  MR. HERTEL: Very good.

12                  MS. DAVIS: And, and this gives  
13                  California the authority to do it --

14                  MR. HERTEL: I just wanted to register  
15                  that mild response.

16                  (Laughter.)

17                  MS. DAVIS: California has the authority  
18                  to do it this way, you know. Independently, they  
19                  don't have the authority to create a multi-state  
20                  caps, and I agree that maybe it's worth, you know,  
21                  having some of those discussions to see if our  
22                  perceptions are --

23                  MR. CAVANAGH: I think Mike should have  
24                  those discussions.

25                  MS. DAVIS: -- real.

1                   MR. HERTEL: I mean, why you wouldn't go  
2                   at that, at least in -- and say look, if you're  
3                   not going to join the system with us and help  
4                   design it, we're going to come up with this kind  
5                   of a group -- sorry, I was going to get majority  
6                   -- sorry, Ned -- this elegant system to, to  
7                   prevent power from coming into our state from coal  
8                   plants, why not talk to us about it. I mean, it  
9                   seems easier.

10                  MR. MARGOLIS: So to cut -- so to cut to  
11                  the chase, Mike, you're saying why not do it in  
12                  parallel. Why, why not, at the very least --

13                  MR. HERTEL: Yeah. This --

14                  MR. MARGOLIS: -- we shouldn't dismiss  
15                  just because it's hard, this idea. This idea is  
16                  full of challenges, but we should pursue it  
17                  nonetheless. And if for some reason we're able  
18                  to, through the elegance of our logic, bring in  
19                  supporters who like the idea in Utah, Wyoming,  
20                  Nevada, Arizona, Washington and Oregon, then more  
21                  power to us. But in the meantime, we can also  
22                  pursue this other more defined program. And as,  
23                  as Mike points out, and Ralph does, suggest that  
24                  we also consider project based emission  
25                  reductions.

1 MR. HERTEL: Right.

2 MS. PULLING: Can I, Stacey, can I just  
3 make a, a point separate from this. One of the  
4 principles that I hope you all are wrestling with  
5 is the, the concept of not penalizing early  
6 actors, hence the question about the baseline. I  
7 also think that part of what Mike is saying  
8 relates to this. You can look at early actors on  
9 a company by company basis or a sector by sector  
10 basis. You can also look at it on a state by  
11 state basis. And so I would encourage you to  
12 think through, and you probably already are, the  
13 mechanisms that can be put in place so that,  
14 whether it's individual companies, individual  
15 sectors, or, in our case, the state of California,  
16 as we do take the risk and make the investments to  
17 get some early reductions, that there aren't  
18 penalties associated with that.

19 It's easier, in my mind, to think of  
20 what those types of measures might be on a company  
21 by company basis. I don't know, really, how we do  
22 it as a state or as a region, but I think we do  
23 need to go into that eyes wide open. We're going  
24 to take some kind of a risk in moving forward with  
25 this as a state, or as three states, so what can

1 we build in now so that our businesses and our,  
2 all of our customers are rewarded down the road,  
3 as opposed to penalized for any early investment.

4 So it's an over-arching principle. I  
5 don't have an answer, but I think it is very  
6 important.

7 MS. DAVIS: The easiest place to look  
8 for that kind of answer is in the allowance  
9 allocation. You know, you can decide to allocate  
10 based on 2000 emission levels, on the 1990  
11 emission levels, on whatever year, and you can  
12 choose that year in a way that, you know, it was  
13 before the California program. Or you can also  
14 reward individual actors, as appropriate.

15 MS. DUXBURY: And, and another point,  
16 Stacey, that's sort of following up on Wendy's  
17 point, is California really, compared to the rest  
18 of the country, does have a power sector that on a  
19 pounds per megawatt hour basis is one of the  
20 lowest in the United States in terms of its carbon  
21 intensity, and does that give California a  
22 competitive advantage in terms of attracting  
23 manufacturers and attracting industry in the  
24 future because it does have less of a risk to a  
25 higher price of carbon than other regions of the

1 country, the Ohio Valley, the Southeast, places  
2 like that.

3 And that, that, to me, is one of the  
4 issues that would be interesting to look at a  
5 little more than just, you know, how do we  
6 continue to be the good actor nationally, but also  
7 what kind of competitive opportunities does, does  
8 that give us as a, as a state, in terms of future  
9 industrial opportunities.

10 MR. PARKHURST: So when you mention the  
11 reductions and -- the reductions, it, it's  
12 reductions in the electricity sector. You  
13 couldn't get, you couldn't have manufacturers  
14 banking reductions in any way. That's not what  
15 you're proposing in this, is it?

16 MS. DAVIS: You couldn't have the  
17 manufacturers do what? I'm sorry.

18 MR. PARKHURST: Taking, taking action  
19 and getting credit for it. Because essentially,  
20 it's the electricity that they're using from, from  
21 the utilities.

22 MS. DAVIS: And manufacturers that are  
23 also part of the trading program can also, you  
24 know, reduce below their baselines and generate  
25 allowances to sell back into the grid. You,



1       you're saying --

2               MR. HERTEL: From their own operations,  
3       rather than the electricity they buy.

4               MR. PARKHURST: Right. Yeah, okay.  
5       Okay. This is --

6               MR. HERTEL: They couldn't do it with  
7       electricity, Robert, but they could do it in your  
8       basic operations.

9               MR. PARKHURST: Yeah. If they're doing  
10      cogen, or if they, if they've got any fossil fuel,  
11      generation that they've got. Okay. Yeah.

12              MS. DAVIS: In previous trading programs  
13      there have been set-asides created for energy  
14      efficiency or other things, you know, and that  
15      kind of set-aside could be used to reward a  
16      company that does reduce their electricity, or  
17      improves their electricity efficiency, that kind  
18      of thing. But we haven't assessed that here yet.

19              MR. PARKHURST: But, but it has been  
20      done.

21              MS. DAVIS: Uh-huh.

22              MR. PARKHURST: I'd be curious, and some  
23      more information on that. And, I mean, I can take  
24      that offline.

25              MR. MARGOLIS: On your, on your sixth

1       slide, you have three compliance mechanisms, one  
2       of which should -- there should be four, I think.  
3       You said purchasing allowances, replacing high-  
4       emitting fossil fuels, and investments in energy  
5       efficiency. You should have at least a fourth  
6       one, which would be a project based reduction.  
7       To, to bring in additional reductions into the  
8       program.

9               MR. HERTEL: Well, yeah. I thought that  
10       was covered in energy efficiency, honestly.  
11       But --

12              MR. MARGOLIS: Well, but it's, it  
13       doesn't, it's not just --

14              MR. HERTEL: It should be explicit.  
15       Yeah.

16              MR. MARGOLIS: Energy efficiency is one  
17       of the means.

18              MS. DAVIS: Purchase of allowances  
19       generally, whether they're real allowances or  
20       offsets.

21              MR. MARGOLIS: Maybe there only should  
22       be two. It would be purchasing allowances or  
23       reducing your emissions by some other means.

24              MR. CAVANAGH: Yeah. That's true.

25              MS. DAVIS: All right. Point taken.

1                   Let's --

2                   MR. CAVANAGH: Hertel would've been  
3                   unhappy if we'd left energy efficiency off the  
4                   slide.

5                   MR. HERTEL: I would be.

6                   MR. CAVANAGH: I -- with not a hint of  
7                   irony in that statement.

8                   MR. HERTEL: Not a bit. There's a long  
9                   history --

10                  (Laughter.)

11                  MR. HERTEL: There's nothing like the  
12                  converted, Ralph.

13                  MR. CAVANAGH: I know.

14                  MS. DAVIS: I just wanted to again  
15                  reiterate, the, the two major legal issues that we  
16                  need to make sure that we don't, don't cross, one  
17                  being the interstate commerce clause. You need to  
18                  demonstrate that the program meets a legitimate  
19                  state interest. I think, based on our discussion  
20                  with some lawyers, that we can probably fairly  
21                  easily do that. And then also make sure that you  
22                  have equal treatment of in state and out of state  
23                  generation resources.

24                  In general, the program that we've  
25                  proposed, or described, would, would meet those

1 two conditions. The two exceptions -- the two  
2 exceptions that I would mention is if you did use  
3 a system average emission rate for the west, that  
4 it could probably run astray of the commerce  
5 clause. And second, and this, this may be a moot  
6 point because of more recent things that we've  
7 learned about renewable portfolio standards and  
8 how they're treated in the state. But if there  
9 was a bias in the state against purchasing  
10 renewable energy from out of state, then that  
11 could create a barrier to this because out of  
12 state renewables would be treated differently from  
13 in state renewables under this program, as well,  
14 because in state renewables would be able to meet  
15 both the RPS and the cap, whereas out of state  
16 would not. But again, that may be moot.

17 MR. HERTEL: Ralph, since you're a  
18 lawyer, maybe I can ask you a legal question.  
19 Would that be all right?

20 MR. CAVANAGH: I, it might be. To serve  
21 as your lawyer is what I've always yearned --

22 (Laughter.)

23 MR. HERTEL: The thought occurred to me.  
24 I think, I think we heard that some of the, some  
25 of the cement plants use coal in the course of

1       their process, and I, I'm told there, although I  
2       don't know them, that there are two very small  
3       coal generated, coal-fired generating plants here  
4       in the state. But I, I would venture to say that  
5       it's small.

6               MS. DAVIS: In a call earlier this week  
7       they said three that were 50 megawatts or smaller.

8               MR. HERTEL: Yeah. So I'm wondering  
9       whether somebody who's, maybe Semptra, who's  
10      building a coal plant outside the state that  
11      you've mentioned to me --

12              MR. CAVANAGH: Yes, I have mentioned it.

13              MR. HERTEL: -- might, might be  
14      concerned that this very effective system design  
15      would prevent them from selling their power into  
16      the state, and would argue that it's effectively  
17      virtually not equal treatment because there's no  
18      coal in California to speak of.

19              MR. CAVANAGH: I don't think that's a  
20      problem, Mike. The, the fact is it's a non-  
21      discriminatory system. And --

22              MR. HERTEL: Legally speaking.

23              MR. CAVANAGH: Yeah. Yeah. I just,  
24      we're not at risk there. I, I think I would go on  
25      and say that the way to solve this, the -- what I

1       have encouraged the center to consider is that  
2       you, you use, you can use a default value in any  
3       situation in which the purchase of power by the  
4       load-serving entity isn't sourced to a particular  
5       generator.

6               MR. HERTEL: Uh-huh.

7               MR. CAVANAGH: And that could be true  
8       in-state or out of state. And the point of a  
9       policy like that is to say look, if you can't, if  
10      you can't tell us where the power's coming from,  
11      fine; we'll assign a high default value. And so  
12      there is economic value created for sourcing the  
13      low emissions.

14              MR. HERTEL: Presumably, then, it would  
15      have to be somewhat fact-based, but you could --

16              MR. CAVANAGH: Yeah, and obviously it  
17      would have to be neutral as to where the power  
18      was, whether it was in state or out of state. But  
19      I think that's the solution --

20              MR. HERTEL: Okay.

21              MR. CAVANAGH: -- to this problem.

22              MR. SHEARS: Stacey, could you say more  
23      about the -- you were alluding to new information  
24      about treatment of out of state renewables.

25              MS. DAVIS: Well, we've heard from a

1 couple different people at CEC on how the  
2 renewable energy program is going to work, and I  
3 guess maybe it's not completely defined at this  
4 point, but one person suggests that as long as the  
5 renewable energy is attached to the power that's  
6 being sold to California, it can be, it can come  
7 from anywhere. And the other suggests that well,  
8 there needs to be a first connection of the  
9 renewable in California. So that, those would  
10 have two completely different --

11 MR. HERTEL: To count here.

12 MS. DAVIS: I'm sorry?

13 MR. HERTEL: To count here in the state.

14 MS. DAVIS: Uh-huh. To count towards  
15 the California RPS. So, whichever one is right,  
16 would result in a sort of different set of issues.

17 MR. CAVANAGH: But, but the clear -- the  
18 policy that we're heading toward, as I understand  
19 it, is that anything that's -- it has to be  
20 interconnected with the western grid, obviously.  
21 It can't be from Vermont. But the policy of  
22 California is to, is to -- is moving in the  
23 direction of we'll treat any renewable energy  
24 injected anywhere on that grid the same, for  
25 purposes of RPS compliance, and for purposes of

1 compliance with the cap.

2 MS. DAVIS: And if that's in fact the  
3 case, then there shouldn't be a problem with the  
4 interstate commerce clause.

5 MR. CAVANAGH: Yeah. Okay.

6 MR. HERTEL: But those are, are those  
7 two separable things, Ralph? I mean, I understand  
8 the RPS issue, counting it here in the state  
9 against our, our credit. But for counting for  
10 purposes of greenhouse gas reduction, you really  
11 don't need an interconnection; right? I mean, you  
12 need some valid system of certifying the trade,  
13 but if it's expensive to get the reduction here,  
14 why not let me trade with the UK?

15 MR. CAVANAGH: Or, or with the RGGI  
16 system. And I -- yeah.

17 MR. HERTEL: Or with Nigeria, for that  
18 matter. Why the, why the heck do we care?

19 MR. CAVANAGH: I, I don't --

20 MR. HERTEL; If our goal is to reduce --

21 MR. CAVANAGH: Yeah. We don't, and I  
22 don't think, I don't think it's an interstate  
23 commerce violation if it goes that way.

24 MR. HERTEL: No. I, I just wanted to  
25 make that clear, because it seems that fundamental



1 principles that many of my colleagues in other  
2 very large utilities who happen to be 90, 95  
3 percent coal-base, have, have spoken up --

4 MS. PULLING: Who aren't PG&E, just for  
5 the record.

6 MR. HERTEL: -- have spoken up for  
7 greenhouse gas reduction programs, they all caveat  
8 those programs with one very important clause, and  
9 that is that trading be as general as possible so  
10 that the lowest cost reductions can be used to get  
11 the necessary carbon reductions, all built on the  
12 simple point that Bob made much earlier, which is  
13 if the goal is to reduce carbon emissions then  
14 let's do it as efficiently as we possibly can, and  
15 not, not literally shoot ourselves in the foot  
16 economically.

17 MR. CAVANAGH: My hope is that the  
18 cheapest reductions will turn out to be in  
19 California so that everyone else will be buying  
20 them from us.

21 MR. HERTEL: But the, but the point of  
22 that simple tautological argument is that we  
23 already are amongst the highest producing, highest  
24 cost producing electric systems, so it's obvious  
25 that you're not likely to get them from the

1 electric system here in California. You're going  
2 to have to go to some other part of the economy, I  
3 would argue, number one, to an economy-wide  
4 approach. Number two, it's obvious that those  
5 opportunities in other countries exist at much  
6 lower cost per ton. So I'm wondering why we  
7 wouldn't want to encompass that.

8 The answer is gee, it's hard to  
9 validate. Well, if we're willing to validate  
10 stuff like this, we sure as heck ought to be  
11 willing to take EU credits and buy those. And the  
12 question as to whether they'd sell them or not, I  
13 can go to Josh today. He could cut a deal with  
14 those people right now, because I've got the  
15 money, and they're interested in money. All it's  
16 a matter of is putting the California stamp green  
17 on that particular trade and let, letting me do  
18 it. So why not let me do that? Why force me to  
19 spend lots of extra money which has to be absorbed  
20 by the system here.

21 MS. DAVIS: I don't think we're  
22 proposing that you need to build the renewable  
23 energy in the state, but I think in order to  
24 reduce contract shuffling it's better to make sure  
25 that the renewables are -- come along with the

1 power.

2 MR. HERTEL: I'm being more bold than  
3 that, Stacey. I'm not suggesting that it be  
4 limited to the construction of renewables. As you  
5 know, my company is the largest purchaser of  
6 renewables in this country, so I don't think I  
7 have to take --

8 MR. CAVANAGH: Oh, in the world.

9 MR. HERTEL: In the world. I don't want  
10 to be overly boastful, Ralph.

11 But again, the converted get really  
12 excited about the conversion and pursue it with a  
13 great zeal. My point is, is broader than that. I  
14 mean, there are many options for reducing climate  
15 gases that don't have to be produced by doing  
16 something in the electricity field. And, as you  
17 keep pointing out, a ton is a ton, so why not take  
18 advantage of those lower cost options. And the  
19 most often quoted response that I've heard is gee,  
20 that's complicated. But, since we already have a  
21 Kyoto program in Europe, and they've got a  
22 certification program under the EU system, you  
23 would think that you would want to open it up at  
24 least that far. Why not think about bold ideas  
25 like that?

1 MS. DAVIS: I don't see any reason why  
2 we shouldn't pursue linking with RGGI, linking  
3 with Europe, et cetera. I mean, they're --

4 MR. CAVANAGH: Any place with a hard  
5 cap.

6 MS. DAVIS: Exactly.

7 MR. CAVANAGH: But it goes, but damn it,  
8 it goes -- it goes both ways. And I think the  
9 reason -- Mike, I, I am betting you that we know  
10 more about efficiency, for example, in California  
11 than they do, that there will be instances in  
12 which you'll find you can sell -- we shouldn't  
13 pre-judge which way the dollars will flow. That's  
14 my only --

15 MR. HERTEL: No, I'm not doing that.

16 MR. CAVANAGH: All right.

17 MR. HERTEL: But I, I do submit that at  
18 least, even in hard cap programs, that would be  
19 something. I will be so bold as to say that  
20 there's no reason to stop there, as long as you  
21 have a valid certification program. While I'm on  
22 the tear, why don't we think about energy  
23 efficiency standards for power plants in the  
24 system? Why limit ourselves to caps? Why not  
25 think about standards for efficiency for

1 generators? Australia does this by fuel type, so  
2 that it's possible to use different fuels.

3 There are lots of great ideas out there  
4 that need to be explored and not just simply fall  
5 into the bureaucratic, very difficult systems that  
6 we seem to be examining here.

7 MS. PULLING: Couldn't, couldn't some of  
8 those -- couldn't some of those ideas --

9 (Parties speaking simultaneously.)

10 MR. HELME: -- the possibility of having  
11 bio-digesters, or having petroleum refining. I  
12 mean, you've got a whole -- you've got major  
13 things that you could set up, either as part of  
14 the cap or with a, you know, a bottom line  
15 benchmark. There's lots of ways --

16 MR. HERTEL: I think the shibboleth is  
17 the wider, the better. That makes it cheaper,  
18 that makes it more effective.

19 MS. DAVIS: All right. I think I would  
20 agree with that, as long as it's a cap program,  
21 and it -- it might not be --

22 MR. HERTEL: No, I'm not going to agree  
23 to that constraint. I agree that that's a first  
24 step, but I would say very firmly that there are  
25 many ways to certify those reductions. Just, for

1       example, the Kyoto clean development mechanism has  
2       a certification process attached to it. There's  
3       no reason why you couldn't go to different  
4       countries that aren't actually participating as  
5       reduction groups within Kyoto but offer clean  
6       development mechanisms.

7               MS. DUXBURY: But couldn't this program  
8       allow for something like that, so if you wanted  
9       to, to sell coal into California, if you offset  
10      some of your allowances in order to sell into the  
11      state you could do that --

12             MR. HERTEL: Absolutely.

13             MS. DUXBURY: -- by purchasing those  
14      offsets.

15             MR. HERTEL: Absolutely.

16             MS. DUXBURY: Perhaps not for your  
17      entire facility, but for some portion down to a  
18      certain specific level that allows you to --

19             MR. HERTEL: Certainly. That could be  
20      done.

21             MS. DUXBURY: -- work within the cap,  
22      which is what you're getting at. So this doesn't  
23      preclude that from being part of what we're --

24             MR. HERTEL: No. What I'm, what I'm  
25      suggesting, though, is --

1 MS. DUXBURY: -- putting together.

2 MR. HERTEL: -- we're tending, and, and  
3 we were talking about how do you attack these  
4 wicked problems. If you start by talking goals  
5 first, we want to go back to pre-1990 levels by  
6 year X, it gets difficult because there's a lot of  
7 contention around that issue. On the other hand  
8 -- and, and it's because you can't say how you're  
9 going to do that. On the other hand, if you start  
10 talking about how you're going to do it people  
11 start screaming, as I have been, about, well,  
12 what's the goal here, tell me how much time I  
13 have. So you need to fit those things together, I  
14 think, in order to make a whole.

15 So, yes, I am suggesting that, not to  
16 look at it just sector by sector, but look at it  
17 across the, the spectrum of the economy. And what  
18 I've seen in the economic studies is that every  
19 single study that I've seen about the American  
20 economy and how to approach this says that it's  
21 outrageously expensive to do it sector by sector,  
22 and you wouldn't pick the most expensive one,  
23 which is electricity that's already cut back a  
24 lot. You would go to other sectors that haven't,  
25 and do those first.

1                   But at any rate, spreading it across the  
2                   economy is a much more efficient way to get at the  
3                   problem.

4                   MS. DAVIS: All right. The other legal  
5                   issue I wanted just to raise is the FERC has  
6                   authority over transmission and wholesale power  
7                   transactions, and we don't want to cross that  
8                   authority. And as designed, the cap on emissions  
9                   associated with demand, we don't think it does  
10                  because it addresses load serving entities and  
11                  addresses retail sales.

12                 In conclusion, a cap on emissions  
13                 associated with power demand has some clear  
14                 advantages over a cap on generation for  
15                 California, in terms of when it actually sets a  
16                 hard cap for the state, it encourages the lower  
17                 zero-emitting resources and longer term contracts  
18                 with those. It limits the potential for leakage,  
19                 and we've talked about a number of challenges and  
20                 how to design the program, and we think most of  
21                 those can be overcome. But, you know, that's not  
22                 to minimize them, either.

23                 Success rests on resolving the data,  
24                 monitoring and verification issues, in particular.  
25                 And the modeling results will indicate how the,



1 the power system might be expected to react to a  
2 cap on emissions associated with power demand at  
3 different levels, and the overall impact on  
4 emissions and, and wholesale prices.

5 MR. HERTEL: I'll stipulate to my  
6 previous objections, not repeat them for the  
7 court.

8 (Laughter.)

9 MS. PULLING: Stacey, can I ask you --  
10 well, do you want me to wait for questions, or --  
11 I already interrupted, so I'll just continue.

12 I may have missed this. But what, what  
13 about the prospect or opportunity for LSEs to make  
14 off system reductions? So, in other words, let's  
15 say in our vehicle fleet, or let's say through  
16 working with the Port of Oakland, for example, to  
17 help them electrify their, you know, and reduce  
18 transportation sectors. How would that type of  
19 project be treated under the, the regime that  
20 you're developing?

21 MS. DAVIS: I don't think I have a good  
22 answer for that yet. But, I mean, first, this  
23 group and, you know, the CEC and CalEPA and  
24 everyone else in California who are going to be  
25 making the decisions will need to decide which

1 sectors need to be controlled, and at what level.  
2 And, you know, if a sector like transportation has  
3 the responsibility already unto itself, you can  
4 only reduce it below that. So, you know, that  
5 might reduce what's available for offsets that are  
6 not included within that system.

7 But I would --

8 MS. PULLING: So let me just say I would  
9 encourage some more thinking about that, just  
10 because for, you know, for, for, certainly for my  
11 company, we do have, we have a large fleet. We do  
12 have the opportunity to work with customers to  
13 help reduce their emissions in the transportation  
14 sector, so it's sort of a off system reduction.  
15 It's still within our purview, but it's not our  
16 generation or load serving.

17 MR. MARK: I'd just suggest that I think  
18 that's right, you want to look for opportunities  
19 outside of the, let's say the specific regulated  
20 sector to, for opportunities to reduce emissions  
21 and secure offsets. But, but it has to be done  
22 with great care. I mean, a particular example,  
23 for example, PG&E reducing the greenhouse gas  
24 emissions from, let's say, passenger vehicles is  
25 already covered, theoretically, under the

1 greenhouse gas standards, the Pavley standards.

2 MS. PULLING: Right. But the trucks  
3 aren't.

4 MR. MARK: So that, you know, the Ford  
5 Motor Company's getting credit for --

6 MS. PULLING: Right. But the trucks  
7 aren't.

8 MR. MARK: But the trucks aren't.

9 MS. PULLING: So if we have CNG trucks  
10 out there where there's no regulatory requirement  
11 in place, but we're doing it anyway, and we want  
12 to do more --

13 MR. MARK: Yeah. I think --

14 MS. PULLING: -- yeah.

15 MR. MARK: -- and I think that's, this  
16 is the sort of regime where you try to explore  
17 those opportunities to create incentives. My  
18 sense is that most regions, Europe, RGGI, are  
19 exploring that, some experimentation with that,  
20 with the cap on, on offsets outside the sector.  
21 So, you know, five percent. I've forgotten now  
22 what the European target is, I think it's five  
23 percent in the, in the first tranche of, of your  
24 emissions. Allowances could come from offsets  
25 outside of what you're required to do

1 specifically.

2 MR. HELME: And this question kind of  
3 goes to the answer I wanted this morning about how  
4 we design the overall program. So, for example,  
5 Greg talked about doing something with the trucks  
6 in the transportation piece. So maybe the group  
7 agrees a certain piece of this is X amount from  
8 the trucks and transportation, so then your  
9 program, if it went beyond that, those credits,  
10 you'd have a verifiable baseline of those credits  
11 beyond that, might be implementable into this cap  
12 and trade program.

13 So it's, you want to think about this as  
14 an integrated whole as you go forward.

15 MS. PULLING: Yeah. When you get to the  
16 cross-cutting issues subcommittee, this is kind of  
17 an interesting one. Let me take a, a different  
18 one, to move away from our fleet and think about  
19 the Port of Oakland and the, and the gentleman was  
20 talking about cold ironing, I think it's called.  
21 But in that situation, we would -- actually, any  
22 utility, but I'll use mine for example in this one  
23 -- we would be adding to our, potentially, to, at  
24 least to electric demand on our system, but  
25 probably contributing, or an overall reduction

1 sector-wide in greenhouse gases, because we're  
2 helping to take gasoline and diesel out of, you  
3 know, from being emitted. But at the same time,  
4 we're adding that load onto our system, so it's a  
5 solution, but it could also drive up our demand,  
6 and potentially, if it happened all over the  
7 place, potentially greenhouse gas emissions.

8 So not, not raising it as any kind of  
9 objection, just more as an opportunity and a  
10 cross-cutting issue that, as we get more into how  
11 the electric sector can perhaps resolve some of  
12 the issues in the transportation sector, and vice-  
13 versa.

14 MR. HERTEL: Actually, it probably  
15 wouldn't lead to increased greenhouse gas  
16 emissions as a whole, since --

17 MS. PULLING: I think --

18 MR. HERTEL: -- since electricity is so  
19 much more efficient at doing --

20 MS. PULLING: Yeah. No, overall, it  
21 would be a reduction, and -- overall, it would be  
22 a reduction in greenhouse gas emissions.  
23 Absolutely. But it would shift, it would shift --

24 MR. HERTEL: Across sectors.

25 MS. PULLING: -- across sectors.

1                   MR. HERTEL: Which was my point. Yeah.

2                   Let's, let's do that.

3                   One, one question, not, not to shift  
4                   completely from a cap program, but shouldn't we  
5                   also talk about trying to do as much as we can  
6                   here in California, to wit, why not all of the  
7                   LSEs in California participate in RPS. I mean,  
8                   it's something we've talked about before, and, and  
9                   the problem is every time I go to the legislature  
10                  they don't hear enough from those people who are  
11                  willing to do that, so they reject it on the basis  
12                  that the munis come in and say gee, it'd be some  
13                  -- munis come in -- and say that it's too darn  
14                  expensive to do it that way.

15                  But, I mean, we're, we're talking about  
16                  a pretty complex program here. It would seem to  
17                  me the first place to look is right here at home.

18                  MR. CAVANAGH: Could we use this as a  
19                  segue to the actual recommendations?

20                  MS. SCHORI: Yes. I was going to say we  
21                  actually --

22                  MR. CAVANAGH: Because, yeah. This  
23                  would allow Jan to outline them.

24                  CHAIRPERSON BOYD: And, and respond in  
25                  her customarily spirited way to Mr. Hertel's

1       impertinent suggestions.

2               MS. SCHORI:  Mike has improved my  
3       vocabulary today.  I'm not complaining.  I've  
4       learned lots of -- I'm going to learn to use those  
5       words.

6               MS. BROWN:  We've got the list right  
7       here.

8               MR. HERTEL:  It's a product of over-  
9       education.  I apologize.

10              (Laughter.)

11              MS. DAVIS:  I, I think that's a good  
12       segue.  The third question that I had related to,  
13       you know, the advantages and disadvantages of this  
14       whole program against other alternatives, and I  
15       think we've had a little bit of a discussion on,  
16       you know, the RPS, or other things.  So I'm  
17       interested in sort of that big picture sense.

18              A couple of more specific questions.  
19       The viability of, of the kind of tracking system  
20       that, that would be needed, and Ralph already had  
21       one response.  But do others agree that, you know,  
22       this is the kind of thing that would emerge if you  
23       had this kind of cap program in place.

24              And, finally, we are planning to do some  
25       extensive modeling of a cap on emissions

1 associated with power demand. At this point we  
2 have not proposed to also do modeling of a cap on  
3 generation just to see what those effects really  
4 are, and there had been some discussion on the  
5 call earlier this week that that might also be  
6 useful. If we, if that is something that we want  
7 to do, we would need to talk about that and figure  
8 out how to get the money to do it.

9 MR. HERTEL: That would be great,  
10 because at least you'd know then what the relative  
11 prices would be at the end of the trail, you know.  
12 It would be really worthwhile.

13 Other comments and questions. One thing  
14 that I also would, would wonder if we should look  
15 at is, is that the system seems to me to go in the  
16 face of the FERC-based market trading system, the  
17 electricity market process, in the sense that  
18 that, at least this commission and the commission  
19 before it, has been totally oriented toward  
20 competition. And I suspect the, the tools that  
21 they use to, to enforce that kind of model maybe  
22 don't conflict, but they sure rub up, up against  
23 this real hard.

24 MR. CAVANAGH: Mike, they run that  
25 program in the face of that SO2 cap without a



1       hitch.

2               MR. HERTEL:  Yeah.  The trouble with  
3       that is that in SO2 you can shift around a lot.  
4       Here, we're trying to actually prevent certain  
5       kinds of generation, and, and I don't know that  
6       that's the case.  There's a, there's a way to  
7       offset SO2; right?  The reason that was so  
8       successful, having participated in that, was that  
9       people were able to get the allowances that they  
10      needed quite easily.  And, and until I'm reassured  
11      that that's going to be the case here, I'll, if  
12      you'll forgive me if I retain a certain amount of  
13      anxiety about it.

14              But at any rate, I think, I think the  
15      competitive power structure, the way contracting  
16      is done, is, is a whole arcane area that I don't  
17      understand very well, but I know adds a great deal  
18      of complexity to a system like this that wouldn't  
19      be there with the generation based approach.

20              The final thing I'd like to raise --  
21      maybe not final, but close to final -- would be  
22      Ralph -- Ralph and I, or our surrogates, worked an  
23      arrangement that supported the recent CPUC  
24      decision to put in greenhouse gas adders and  
25      procurement.

1                   MR. CAVANAGH:  Actually, it was our  
2                   superiors.

3                   MR. HERTEL:  It was.

4                   MR. CAVANAGH:  Yeah.

5                   MR. HERTEL:  And, of course, they know  
6                   much better than we, and, and that essential idea  
7                   was to focus on the construction of new  
8                   generation, which Ralph's proposal also does, but,  
9                   but that one did it by, by looking at adders for  
10                  long-term procurement beyond five years.  And  
11                  again, that's a concept that arguably ought to be  
12                  applied across the board to all LLCs here in  
13                  California.  Why stop at the IOUs, why treat them  
14                  discriminately.

15                  MR. CAVANAGH:  The reason I keep trying  
16                  to drive you to this is we have so much what -- so  
17                  many of your wise suggestions --

18                  MR. HERTEL:  Only just a couple of  
19                  things.

20                  MR. CAVANAGH:  Already here.  It's  
21                  already in there.

22                  MR. PARKHURST:  Before we get to that, I  
23                  had somewhat of an uneducated question, is that if  
24                  we keep driving to, to cleaner generation, which  
25                  essentially means natural gas, there's, there's a

1 concern with, with shortfall in the U.S. by 2010,  
2 from the estimates that I've seen, I mean, what  
3 kind of impact would that have on price, and has  
4 that --

5 MR. CAVANAGH: It doesn't -- we've got  
6 to get away from this. It essentially means  
7 natural gas.

8 MR. PARKHURST: It does.

9 MR. CAVANAGH: It means natural gas, it  
10 means all, the whole range of renewables. It  
11 means higher efficiency coal. There's a whole  
12 spectrum of coal efficiencies available in the  
13 west. It means energy efficiency emphatically,  
14 Robert. It doesn't just mean gas.

15 MR. HERTEL: I, I think that --

16 MS. DUXBURY: It means gas, more  
17 efficient new gas displacing really old  
18 inefficient single-cycle gas.

19 MR. HERTEL: Right. But, Robert --

20 MS. DUXBURY: There's, there's a whole  
21 spectrum of, of --

22 MR. HERTEL: Yeah. You know, we can't  
23 just go to gas, because A, we're going to be too  
24 dependent. But, B, the real problem with gas is  
25 that, what, it's about half the carbon intensity

1 of old coal and a third the carbon intensity of  
2 new coal. We can't get there from here. We've  
3 got to go a lot farther. And so if we shift to  
4 gas, especially if we lock in that, that shift for  
5 a long period of time, that's not good from a  
6 climate perspective. It's a bad way to go.

7 It's what we can do now, it's the right  
8 thing to do now, because it's an interim fuel, but  
9 the more we get dependent on gas we're going to be  
10 dependent on LNG imports to make up the, the  
11 difference. And, by the way, there is some  
12 argument about carbon intensity of different  
13 gases, but that's another whole issue. And we're  
14 going to, we're going to be very dependent on a  
15 single fuel, which makes us more vulnerable to  
16 price interruption. Thank you.

17 MS. PULLING: Just one other question.  
18 Were you all intending this to apply to CO2 only,  
19 or also methane, SF6?

20 MS. DAVIS: Initially we were thinking  
21 just CO2 for the power sector, and the others, you  
22 know, as you said, could be looked at as offsets  
23 or in another capacity.

24 MS. PULLING: Okay. But for right now  
25 it's --

1 MS. DAVIS: At least for the tracking  
2 and stuff, it's just a lot more, a lot harder to  
3 figure out how much SF6 from the transmission is  
4 attributed to each plan. That would add a lot of  
5 complications.

6 MS. PULLING: So we're talking about  
7 electricity and CO2.

8 MS. DAVIS: Uh-huh.

9 MS. PULLING: Okay.

10 MS. DAVIS: For the other industry  
11 sources that we've been talking about earlier it  
12 would include methane and it would include --

13 MS. PULLING: Got you.

14 MR. PARKHURST: So, so if you have  
15 projects in other sectors, so from the semi-  
16 conductor side if we've got PFCs, which we can  
17 make --

18 MS. DAVIS: You could convert it to  
19 CO2E.

20 MR. PARKHURST: Okay.

21 MS. DAVIS: Thank you.

22 CHAIRPERSON BOYD: Okay. I'd like to  
23 call on my co-chair, if I could.

24 MS. SCHORI: I was going to say I've  
25 always thought that one of the key elements to

1 success in life is timing. Timing is everything.  
2 And so basically, I dumped an e-mail on Ralph and  
3 promptly left town, and --

4 MR. CAVANAGH: I personally know the  
5 whole story.

6 (Laughter.)

7 MR. CAVANAGH: It's much worse than  
8 that.

9 MS. SCHORI: Yeah, it is, actually.

10 MR. CAVANAGH: It was the most brilliant  
11 negotiating ploy I've ever seen in my entire  
12 career.

13 (Laughter.)

14 MS. SCHORI: Ralph and, Ralph and I  
15 exchanged e-mails to, because our thinking was  
16 that maybe the simplest way to address this,  
17 taking up Josh on his comments at the last  
18 meeting, was to do it through e-mail. It makes it  
19 easier to get ahold of people and let people  
20 respond at their own pace. And so we tested that  
21 ourselves, and I'm hopeful that all of you did get  
22 a chance to take a look at what we are  
23 characterizing as draft power sector policy  
24 recommendations.

25 But first, let me start with the comment

1       that, that this is not a consensus document.

2       Ralph and I agreed we were not trying to get to  
3       consensus, I think, strictly for the purpose of  
4       allowing Ralph and I to later denounce the  
5       document and offer our own proposals. But at any  
6       rate, I'm hopeful that, that you've all had a  
7       chance to take a quick look at these. I'll just  
8       briefly offer a few comments.

9               First, Ralph and I are in agreement that  
10       it is appropriate to take the financial risk of  
11       greenhouse gas regulation into account explicitly  
12       when making decisions on acquisition of new power  
13       resources.

14              Now, I will, I probably should have done  
15       a caveat at the beginning of my comments here.  
16       These are really personal comments on my take as a  
17       member of this committee. I don't have any  
18       authority to be in here speaking for CMUA or APPA,  
19       or anyone else. I have limited authority to speak  
20       for SMUD until my board reins me in, so since  
21       they're not here right now, I'll just go running  
22       off as usual. So at any rate, we did want to put  
23       that in.

24              We also, in Point 2, wanted to have some  
25       acknowledgment of the leadership work that's being

1       done at the PUC in this area in trying to come up  
2       with dollar values to assign as a carbon adder for  
3       purposes of evaluation. At SMUD we are trying to  
4       figure out are there other mechanisms that we  
5       could use that would have some objectivity that  
6       might also work. But nonetheless, I just wanted  
7       to say that I'm in support of Ralph's suggestion  
8       that it would be worthwhile for the advisory  
9       committee to endorse what the PUC is doing in this  
10      area, recognizing from the comments we heard this  
11      morning there's still more work ongoing to figure  
12      out how best to do this. But at any rate, that  
13      was the purpose of our Point 2.

14               Point 3 is probably the more interesting  
15      one, and you see that there are some comments from  
16      the center on this. Point 3 probably is coming  
17      more from me than from Ralph, because I'm  
18      struggling a little bit with, to be frank, the  
19      debate that some of you, at least, are fully  
20      familiar with that's gone on in the legislature  
21      about the RPS. And the challenge of, from the  
22      municipal perspective, new state mandates that  
23      don't include funding and that do not match the  
24      obligations that at least the municipal community  
25      feels were imposed on the investor owned



1       utilities.

2               And specifically, I'll just say, and  
3       then I'm going to let this drop because this is a  
4       debate that's gone on for a long time and probably  
5       will continue. The municipal community does not  
6       have cost caps, or at least in the past  
7       legislation, and the investor owned utilities do.  
8       And so there has been a big concern about a  
9       fundamental core principle that I think the  
10      investor owned utilities have been very interested  
11      in. Everybody gets nervous about their  
12      competitive posture versus other people in the  
13      industry.

14             So you always start out with the  
15      principle that all, everyone, as far as I know, in  
16      the investor owned community utilities as well as  
17      the municipally owned utilities endorse improving  
18      the environment. They're going to endorse dealing  
19      with climate change. It just gets down to the,  
20      the discussions that we've been having about the  
21      complexity of trying to figure out how you go  
22      about -- go after it.

23             So in discussions with my staff, and  
24      this is what I kind of bombed on Ralph as I ran  
25      out of town, one thought that we had, so this is

1       really just a SMUD suggestion, would be that  
2       everybody that serves load is obligated to come up  
3       with some kind of an action plan and then make  
4       that publicly available as to how they intend to  
5       deal with global warming, but first start out with  
6       even an analysis of what their own emissions are.  
7       We don't even have some of the basics in place  
8       yet, and I'm sort of endorsing the comments that,  
9       that I think Mike was making.

10               We, we've already had the government  
11       reject Kyoto. We have a lot of dynamics going on  
12       at the global, or the world level about the role  
13       of the United States in, in dealing with this  
14       problem. We're making, I guess, a little bit of  
15       progress at the federal level. Not much, by my  
16       judgment, but some. I'd love to see more action  
17       both at the federal level and at the regional  
18       level.

19               But at the end of the day, this advisory  
20       committee, when I stood back to think about it a  
21       little bit, probably has to try and come up with  
22       what can California do. So I almost got there  
23       backing into it, rather than the should California  
24       be a leader, I always think it's great if we  
25       should be the leader, but it's almost like what

1 can we do if everybody else is still taking their  
2 time.

3 So one thought was let's get some  
4 concrete stuff out there, let's get a plan out  
5 there, let's start having the utilities calculate  
6 what's going on, and then figure out what we can  
7 do, especially with respect to the decisions we're  
8 making now and going forward, where we have an  
9 opportunity then maybe to have a big impact on  
10 what's being done, or how to deal with this issue.

11 I will say that the -- I have to give  
12 full credit to Ralph for Point D on the IGCC,  
13 because he's more the expert on that than I am,  
14 because we don't --

15 MR. CAVANAGH: Oh.

16 MS. SCHORI: -- we don't any coal. So  
17 I'm not very knowledgeable about that.

18 Then the, the fourth point is one that's  
19 been showing up, I think, in all our  
20 presentations, which is somehow we've got to come  
21 up with a system for tracking what's going on and,  
22 and allocating ownership.

23 After this went out, then, Josh went  
24 ahead and sent in some comments, and I wanted to  
25 endorse conceptually his idea here that we should

1       be coming up with a market based solution to allow  
2       trading to, to improve the, the emissions, and not  
3       just limit ourselves to power plants or other --  
4       at least we, at SMUD, would like to have, I'd love  
5       to have the options of forests. I'd like to have  
6       all different kinds of options so that I have the  
7       flexibility to come up with the least cost  
8       solutions for my customers, and I assume all the  
9       other load serving entities would feel the same  
10      way about that.

11               I think Denise also submitted some  
12      comments, and those have been discussed a little  
13      bit earlier, about linkage, about how do you link  
14      up what we're doing here with what's potentially  
15      going on elsewhere.

16               So that was the draft. And as I said, I  
17      then immediately left town, e-mailed Ralph from my  
18      house and said don't send me anything else, I'm  
19      leaving. So that'll be my introduction, and now  
20      I'll turn it over to bad old Sharon.

21               MR. CAVANAGH: The word I simply would,  
22      the, the -- you all need to know much more about  
23      what transpired, because -- so the, the general  
24      manager and I went back and forth over a series of  
25      drafts, and her last draft did come to me with the

1 notation, well, I'm now getting married and going  
2 to Paris for my honeymoon, and I'll be back the  
3 day before the meeting, so do whatever you need to  
4 do.

5 I, I don't regard this as the most  
6 effective single negotiation ever, ever inflicted  
7 on me, but she really is never going to be able to  
8 use it again, as best I can determine.

9 MS. CORY: You never know.

10 (Laughter.)

11 MR. CAVANAGH: No, no. I do know. I do  
12 know.

13 So all I want is -- let me just add a  
14 word. She, she laid it out very well. I think, I  
15 do think Items 1 and 2 I hope are not  
16 controversial. They basically reinforce what I  
17 think is a widespread view around the table that a  
18 policy developed with a whole lot of involvement  
19 by a number of people around this table is a good  
20 idea. It's helpful to say that.

21 I think also that it is, I hope on Item  
22 3 we need to talk it through. The, the item that  
23 is on it that I had suggested to Jan is what I  
24 hope the governor meant when he said he wanted to  
25 extend transmission infrastructure to 6,000

1 megawatts of new coal. What I hope he meant, and  
2 it's going to be for him to obviously make this  
3 clear, is that -- and I, the announcements did  
4 speak of clean coal, and I believe that what that  
5 means for the Schwarzenegger administration is in  
6 fact that we're going to be looking for an  
7 environmental performance standard here, and it's  
8 going to be an exacting one.

9 And the one that I have suggested is the  
10 performance equivalent of IGCC that has made, at  
11 least made provision for responsible disposal of  
12 its global warming waste.

13 MR. HERTEL: What does that mean, Ralph?

14 MR. CAVANAGH: What that means to me at  
15 this point, Mike, is that --

16 MR. HERTEL: I try to be a straight man  
17 whenever I can.

18 (Laughter.)

19 MR. CAVANAGH: You've got -- an IGCC  
20 plan, as many of you know, you basically go from  
21 coal, from burning the coal to refining it as if  
22 it were a chemical plant. And one of the waste  
23 products of the refining process for an IGCC plant  
24 is pure stream of carbon dioxide. And so it is a  
25 great deal cheaper, with the right equipment in

1 place, then if there is a national system of  
2 trading for carbon in place, to go ahead and take  
3 that carbon dioxide and inject it underground.

4 And so then at least you've got the  
5 option, whereas if you've locked into a 40-year  
6 conventional coal plant you don't have any  
7 straightforward and low-cost means of dealing with  
8 the waste.

9 MR. HERTEL: So your, your simple answer  
10 to that is that you would --

11 MR. CAVANAGH: It's sequestration ready,  
12 but I -- but I'm not --

13 MR. HERTEL: It's separate CO2 stream --

14 MR. CAVANAGH: Yes. That, that whatever  
15 you do it's, that -- and that's part of the  
16 judgment you're making about the environmental  
17 performance of the facility. Has it got a, a CO2  
18 stream that could be injected underground --

19 MR. HERTEL: Right.

20 MR. CAVANAGH: -- in the event that we  
21 had a national regulatory system.

22 MR. HERTEL: By, by the way, the reason  
23 that's important is that there are many IGCC  
24 processes, and some --

25 MR. CAVANAGH: Some do, and some don't.

1 MR. HERTEL: -- some do, and some don't.

2 MR. CAVANAGH: Yes. That's a fair  
3 point. Now, on --

4 MR. MARK: It wouldn't be, just to be  
5 crystal clear, that, that is, in fact, not the  
6 design you would put in place if you weren't going  
7 to sequester --

8 MR. HERTEL: No, no. If you were, if  
9 you were trying to maximize the efficiency of the  
10 power output, you would, you would just dump the  
11 CO2 into the air, obviously, because it's going to  
12 be expensive to, to pump it someplace.

13 MR. CAVANAGH: But the, the hope here is  
14 to identify that this is part of what counts, in  
15 terms of environmental performance, for purposes  
16 of long-term financial investments by California  
17 utilities out to be the capacity to deal  
18 responsibly with the waste. And, and so we  
19 offered that for your suggestion.

20 Item Four, which I'm not sure, Jan, is,  
21 I think intended -- Jan, this is your language,  
22 but I believe this is intended to also endorse the  
23 continuing efforts of the California Climate  
24 Registry and the expansion of its efforts  
25 westwide, which I think is a great thing. I think



1       there we might want to clarify, Jan, what we're  
2       talking about is pursuing the development of a  
3       statewide and western region program for  
4       determining and tracking global greenhouse gas  
5       emissions. I don't think we're dealing with owner  
6       -- I mean, ownership is a regulatory matter.

7               I, I think this is to be considered in  
8       the context of a, of a very valuable institution,  
9       the California Climate Registry, which I will  
10      point has been fortunate to have Jan Schori aboard  
11      since its founding. And which I think would be --

12             MR. MARK: Ownership was just to prevent  
13      the double counting or the --

14             MR. CAVANAGH: So tracking, I would  
15      suggest tracking --

16             MR. MARK: -- RGS over here, and for --

17             MR. CAVANAGH: Yeah, determining and  
18      tracking. Determining and tracking greenhouse gas  
19      emissions. But, but the point is, I hope we will  
20      do that.

21             And finally, I also appreciate Josh's  
22      willingness to put in front of us a very specific  
23      way of capturing -- and, and I think this was the  
24      exchange between Josh and Mark earlier. If you  
25      are, if you have made a decision that the state of

1 California should act to reduce greenhouse gas  
2 emissions, can we agree that a cap system is the  
3 best way to do that, as opposed to the one size  
4 fits all mandates, which have been denounced  
5 eloquently for essentially ever 15 minutes over  
6 the course of, of the day, and in our previous  
7 meetings.

8 I think it would be great if we could do  
9 that, too. That's obviously a principle that is  
10 applicable to more than just the power sector. It  
11 presumably would cover all sectors of energy use.  
12 But if we can get at it here and get agreement on  
13 how to do it, I think that would be terrific.

14 So what we've tried to do is to put in  
15 front of you just something specific you can look  
16 at and think about that might be in the form of  
17 something we could actually do together. I  
18 certainly very much hope the other subcommittees  
19 will do this, as well.

20 And my suggestion for what we do now is  
21 to, is to get the comments of this group, get as  
22 much closure as possible on this, and put us in a  
23 position to quickly circulate something that tries  
24 to capture everything that we hear from you and  
25 see if we can get a quick, reasonably quick

1 resolution on these points.

2 MR. HERTEL; Well, one further question  
3 on IGCC, Ralph.

4 MR. CAVANAGH: Yeah.

5 MR. HERTEL: When, when you say  
6 responsible and ready to, to sequester carbon,  
7 I'm, I'm struggling with that a little bit. Would  
8 the developer of the plant or the financier of the  
9 plant take on some sort of obligation in your  
10 mind?

11 MR. CAVANAGH: In my mind, what --

12 MR. HERTEL: And what would that  
13 obligation be?

14 MR. CAVANAGH: We're at a higher level  
15 than I had intended to be in these  
16 recommendations. But in my mind, it simply, it  
17 would -- the, the objective environmental  
18 performance standard is that there is a reasonably  
19 pure carbon dioxide waste stream that is  
20 associated with the generation.

21 MR. HERTEL: So there would be nothing  
22 like in five years you've got to come --

23 MR. CAVANAGH: No. Because, I mean, and  
24 I think because that, that, it seems to me, is a  
25 poison pill requirement in this market.

1                   MR. HERTEL: I would agree.

2                   MR. CAVANAGH: So I'm just trying to say  
3 I want -- the, the generation has to be in a  
4 position where it could readily do it if, if the  
5 system of regulation required it, but I wouldn't  
6 insist on it. That would be my view, and we  
7 should talk about it.

8                   It certainly is an advance over,  
9 obviously, where we are now, which is at least  
10 opening up the possibility that we'd be open to --  
11 to give you all a sense of how significant even  
12 one new coal -- so the new coal, the 1500 megawatt  
13 coal plant proposed by an entity not represented  
14 in this room, has ten million tons of -- oh,  
15 wrong, they're in the room. Ten million tons, and  
16 so you need -- they have no intention of  
17 purchasing power from this facility at this time,  
18 and Sempra hasn't made a final decision to sponsor  
19 it. So let's, and I hope it never happens.

20                  MR. HERTEL: What are you talking about?

21                  MR. CAVANAGH: But the distant -- I'm  
22 just looking at you as the embodiment of  
23 enlightened utility executives.

24                  (Laughter.)

25                  MR. CAVANAGH: If someone were -- if

1 someone were dumb enough to build a new 1500  
2 megawatt coal-fired power facility, it would  
3 generate ten million tons of carbon dioxide a  
4 year. Now, we've been putting -- the total  
5 California emissions from all sources is about 400  
6 million tons. So ten million tons from one power  
7 plant, a quantity of, a quantity of emissions more  
8 than double the largest energy, the largest carbon  
9 dioxide savings ever achieved in one year by all  
10 of California's conservation programs combined, if  
11 we do one or two of those we blow through any hope  
12 of stabilizing and reducing emissions.

13 And so the suggestion here is simply if  
14 we're thinking long-term, we're not saying no to  
15 coal for all the reasons that we've discussed  
16 around the table, but we're saying we want to, we  
17 want to see a level of environmental performance  
18 that meets some minimum criteria. And that it  
19 would be helpful if, to the extent this group  
20 could identify what that might look like, it would  
21 be a useful contribution.

22 Those are --

23 MR. HERTEL: You make a lot of good  
24 points, as you usually do. I just wish you  
25 wouldn't make them so fast, because it's hard for

1 me to remember them all.

2 (Laughter.)

3 MR. HERTEL: But I have sympathy with a  
4 lot of that, Ralph. The, the difficulty that I  
5 have in endorsing this out of whole cloth is I  
6 can't see why you would want to just put a barrier  
7 in like this with IGCC. Why not find a way to, to  
8 incentivize the development of those kinds of  
9 plants, which I wholly endorse and have spoken to  
10 before the CPUC, but at the same time take Josh's  
11 approach. If Semptra wants to go ahead and take  
12 the market risk, which I'm interested in what --  
13 like you, but I, I think they probably have good  
14 reasons why they want to take that market risk  
15 since I don't know of any California utility  
16 that's, that's planning to buy power like that. I  
17 mean, we're all peak short.

18 MR. CAVANAGH: But we're, we're all --  
19 I'm not trying to impose anything. I'm just  
20 saying we -- the California utilities shouldn't  
21 buy it.

22 MR. HERTEL: But my point is, why?

23 MR. CAVANAGH: And we -- because of the  
24 risk associated with all those carbon emissions.

25 MR. HERTEL: But if I mitigate that risk

1 by having my good friend Josh here go out and help  
2 me buy cheaper offsets to offset that, that burden  
3 that you're talking about, then why not do that?

4 MR. CAVANAGH: And, and you know  
5 something, if we had a national cap and trade that  
6 -- I, I'd have no good answer for you. I'm  
7 saying, Mike, that since we don't, and since part  
8 of what we're trying to do here is provide the  
9 kind of leadership that is, I think, a reason why  
10 all of us are around the table, is we recognize  
11 that it isn't all happening on a national basis  
12 right now.

13 MR. HERTEL: Right.

14 MR. CAVANAGH: So one of the useful  
15 things for California to do, in addition to  
16 stepping out on Josh's cap and trade, is to try to  
17 influence the development of the technology  
18 marketplace. And this is a tipping point for  
19 coal. This is -- and I think on this one you and  
20 I may be in agreement on something very important.  
21 Coal is on the verge, if it makes the right moves,  
22 of actually I think having a, a real robust  
23 future. Because IGCC equivalent environmental  
24 performance is impressive environmental  
25 performance. It's close to what Peggy can do.

1 MR. HERTEL: On all other counts.

2 MR. CAVANAGH: And, and if it could  
3 sequester the coal it would at least give her a  
4 run for her money. She's still going to tell you  
5 robustly that she can beat it, and I'd love for  
6 her to have a chance to. But if they don't move  
7 this way, if they keep building the conventional  
8 facilities -- and Mike, they've got every  
9 opportunity to do it because the, the other  
10 western states won't cap carbon for the next few  
11 years -- we run a real risk of locking into it.

12 And I'm just saying on this one let's do  
13 something more than Josh's cap and trade lets us  
14 do. Let's, let's set an example in terms of our  
15 own purchasing policy and try to push the whole  
16 coal industry.

17 MS. DUXBURY: And actually, we are, as a  
18 company, looking at IGCC down in Texas, not for  
19 coal but for petcoke, and one of, one area where  
20 coal, if you use IGCC, does have an advantage over  
21 a combined cycle is if you do start to learn how  
22 to capture the carbon. It's easier to capture  
23 carbon from an IGCC facility than it is from a  
24 combined, from a gas, or certainly from a  
25 pulverized coal plant. And so to the extent --



1                   MR. HERTEL: From a gas -- gas-fired  
2                   plant.

3                   MS. DUXBURY: Exactly. So to the extent  
4                   that we start becoming, you know, we start moving  
5                   down the technology curve on carbon capture, IGCC  
6                   would have some advantage over combined cycle gas,  
7                   and California has a huge potential for  
8                   sequestration, geological sequestration. So  
9                   there's a, there's a business model that might  
10                  start to make sense on --

11                  MR. HERTEL: We're looking at that, as  
12                  well.

13                  MS. DUXBURY: -- with this type of  
14                  language.

15                  MR. HERTEL: But let me, let me --

16                  MS. DUXBURY: But it does create a  
17                  problem with the cap and trade, kind of because  
18                  you are, you know, sort of pushing in one  
19                  technology versus having a pure cap and trade.

20                  MR. MARGOLIS: A couple things trouble  
21                  me though, Ralph. I mean, if, if you're going to  
22                  focus on this with respect to the power plants,  
23                  why not have an equivalent with dairy farmers?

24                  MR. HERTEL: There is nothing comparable  
25                  in scale to a new coal-fired power generation.

1 But it's qualitative -- intellectually, it's  
2 qualitatively different. Ten million tons, the  
3 entire, the entire dairy sector is trivial  
4 compared to that.

5 MR. MARGOLIS: And if, if the, if you  
6 have ten million tons and if you use that money --

7 MR. HERTEL: Per year.

8 MR. MARGOLIS: -- that you need to  
9 mitigate ten million tons, imagine the good that  
10 you can do with sources that you never would've  
11 touched.

12 MR. HERTEL: Yeah. So I, I'm for your,  
13 I'm for your proposal. I, I don't view these as  
14 alternatives to each other. The last part of this  
15 is a, is an endorsement of a cap and trade  
16 approach for the -- as, as the fundamental best  
17 way to solve the problem. And I'm simply  
18 suggesting, Josh, that as an additional  
19 recommendation, because we will not be able to cap  
20 emissions for the entire country or even the  
21 entire west, that we consider this additional  
22 step.

23 MR. MARGOLIS: The, the market,  
24 theoretically, should penalize anybody who's not  
25 going to do an IGCC.

1                   MR. CAVANAGH: Yes. In California. But  
2                   it will not penalize them outside California.

3                   MR. MARGOLIS: Well, if, if we pursue a  
4                   program where an IGC -- are we talking about  
5                   limiting investments in power plants that are  
6                   using this non-IGCC technology outside of  
7                   California?

8                   MR. CAVANAGH: No. We're talking about,  
9                   we're saying that California's load-serving  
10                  entities, if one accepted this recommendation.

11                  MR. MARGOLIS: So if it's in Nevada --

12                  MR. CAVANAGH: Right.

13                  MR. MARGOLIS: -- it's bringing power  
14                  into California.

15                  MR. CAVANAGH: You don't -- California  
16                  utilities don't invest in it.

17                  MR. MARGOLIS: And it's not IGCC.

18                  MR. CAVANAGH: California utilities  
19                  don't invest long term in it. They can buy spot  
20                  market power. But what they don't do, they don't  
21                  provide part of the crucial credit, part of the  
22                  long-term financing that's necessary to get these  
23                  things built. And I'm telling you, without long-  
24                  term financing conventional coal will not get  
25                  built. And if the California utilities stand

1       together and say we won't buy this stuff, and if  
2       they're joined by Oregon and Washington, which are  
3       part of the West Coast Governors Initiative,  
4       that's a huge step forward in moving coal to a new  
5       technology base.

6               MR. HERTEL:  Ralph, I'm sorry, but how  
7       do you explain Semptra's proposal then?

8               MR. CAVANAGH:  Because we don't have  
9       this policy in place yet.

10              MR. HERTEL:  No, no, no.  If, if -- now,  
11       you can argue with me, which you might.

12              (Laughter.)

13              MR. HERTEL:  But the fact of the matter  
14       is, as far as I know, I certainly know RFOs, our,  
15       our request for offers for power right now, which,  
16       by the way, are taking into account the, the long-  
17       term procurement --

18              MR. CAVANAGH:  Right.

19              MR. HERTEL:  -- greenhouse gas adder,  
20       even though we don't have a final decision.

21              MR. CAVANAGH:  Yeah.  You won't buy it.

22              MR. HERTEL:  We're -- but the reason  
23       we're not going to buy it is not because of that  
24       adder.

25              MR. CAVANAGH:  No, you, you're, you're

1 baseload rich and peak short.

2 MR. HERTEL: Well, to put it mildly.

3 MR. CAVANAGH: Yeah.

4 MR. HERTEL: To put it extremely  
5 mildly --

6 MR. CAVANAGH: No, no. Foster has, has  
7 laid this out there with the rest of the deficits.

8 MR. HERTEL: So, so my simple point --

9 MR. CAVANAGH: PacifiCorp's different.

10 MR. HERTEL: PacifiCorp may be  
11 different --

12 MR. CAVANAGH: Hugely different.

13 MR. HERTEL: -- but the fact of the  
14 matter is that certainly PG&E, certainly Semptra's  
15 SDG&E subsidiary, certainly EIX's SCE, certainly  
16 DWP, are all in the same peak capacity problem.

17 MR. CAVANAGH: Well --

18 MR. HERTEL: And therefore, I, I just  
19 would like somebody to explain to me how Semptra  
20 Energy is deterred, need to be deterred if they're  
21 already saying hey, look, I'm going to get the  
22 market risk. Now, to answer my own question I'll  
23 tell you I think I know the answer. And the  
24 answer, I believe, is you're discounting the  
25 market growth outside of California in the Rocky

1 Mountain states and the desert southwest. And  
2 they see a market there for that coal-fired power,  
3 and they're going to build it regardless of  
4 whether California utilities buy it or not.

5 MR. CAVANAGH: I don't think they're  
6 going to build it regardless of -- I think they  
7 are on a knife edge whether to build this or not.  
8 I think there's a real chance they don't go ahead  
9 with it. I think there's a real -- every  
10 conventional coal plant in the west is under  
11 immense competitive pressure. And many of the  
12 principal buyers, they're not all, the, the  
13 California institutions aren't the only one --  
14 Mike will join me in pointing out, the LADWP has  
15 made lots of interested noises about baseload, and  
16 it was nice that Mayor Hahn took them out of IPP3,  
17 but rest assured it'll be back. But you've also  
18 got Washington and Oregon.

19 MR. HERTEL: In April.

20 MR. CAVANAGH: Washington and Oregon are  
21 a critical part of this partnership, Mike, and I  
22 can assure you I do, as you know, a fair amount of  
23 work up there. There's a lot of interest in  
24 baseload generation up there. And again, an  
25 intense conversation about what kinds of coal do

1 we want to buy and on what terms, and Pacificorp  
2 is looking very hard at IGCC equivalent  
3 performance. So are the other major baseload --

4 MR. HERTEL: Well, my, my major concern  
5 about this is I don't think it makes sense to bar  
6 this. I do think it makes sense to incentivize  
7 IGCC. I do think that you could go to a trading  
8 system and get the same carbon benefit. I  
9 understand your objection to that is we're at a  
10 cusp here, we're, we're making capital decisions,  
11 and those capital decisions should be barred to  
12 the extent we can. I'm, I'm skeptical that the  
13 action you propose would actually have that  
14 effect.

15 MR. CAVANAGH: But I guess that's --  
16 since, since, as you just pointed out, none of the  
17 California utilities are likely buyers anyway,  
18 what harm does it do?

19 MR. HERTEL: The harm that it does is,  
20 is less short-term than long-term, I mean more  
21 than five years. We're very concerned about the  
22 increasing dependency of our system on natural  
23 gas. We're very concerned about the lack of  
24 diversity. The ability to go to nuclear power in  
25 the state, which is another obvious answer, is, is

1       certainly not high in anybody's list of prospects.  
2       The ability to develop new baseload hydro, peaking  
3       hydro, is also limited.

4               We've tapped into every single megawatt  
5       and megawatt hour that we can find with  
6       renewables, and we're going to continue to do  
7       that, but we're getting thin on that. We're  
8       getting to load wind very high, and that's very  
9       intermittent, and we're finding a need to  
10      supplement that with fossil resources.

11             So every step away from diversity of  
12      fuel resources in the state, which I think the  
13      Energy Commission needs to be concerned about,  
14      places California in a yet more vulnerable  
15      position.

16             MR. CAVANAGH: But that's, but, but  
17      again, this is a statement -- this does not rule  
18      out coal. It says here are the terms at which  
19      we'll buy it. And I hope you're not saying to me  
20      that California has to rely on ten million ton a  
21      year conventional coal plants to meets its  
22      reliability diversity.

23             MR. HERTEL: I'm not. But I'm saying I  
24      wouldn't bar the development of those resources so  
25      long as, if California desires to pay the price,



1 and decides to impose a penalty on that, all of  
2 the greenhouse gas adder, or all of some kind of  
3 trading cap system, that you could do it that way.

4 MR. CAVANAGH: Well, we should get the  
5 -- I mean, point taken. Let's, let's hear from  
6 everybody else.

7 MR. MEACHAM: I wanted to add something  
8 to that, to that specific thought. Quite a few  
9 minutes ago the, the question was asked, you know,  
10 why not? And I wanted to bring maybe a little bit  
11 different perspective, or even a question.

12 On a local level, and one of the things  
13 I think about, about all these issues that we're  
14 talking about today is that something that's  
15 really important, I believe, is about bringing  
16 along the public understanding and the public  
17 support for these issues as we move forward, and  
18 taking a sustainable approach. At the same time,  
19 just after that question was asked, we got in and  
20 briefly mentioned the dairies, and I think that  
21 was the best example that I can think of today.

22 You know, we made a comment about  
23 combining those materials with other materials  
24 which, to me, implied hauling them off someplace.  
25 And there's certainly possibilities, and I won't

1 discount that. I don't want to discount coal, or  
2 anything. We have to consider everything, as  
3 broad a range of options as possible.

4 But from a sustainable perspective,  
5 using the dairy as an example, trying to bring the  
6 public interest along so that they don't see a  
7 situation in the end where, wow, we've been told  
8 that greenhouse gas emissions have been reduced  
9 dramatically worldwide, but I have two new plants  
10 in my back yard. They have to see some  
11 relationship between the benefits that we've sold  
12 them through science and the reality of what's  
13 happening in their neighborhood, and the dairy  
14 example, rather than haul the material or add  
15 cost.

16 I think that if you empower local  
17 governments, not regions, not so broad that people  
18 don't see the benefits, but local government, to  
19 situations like the dairy, you look to bring new  
20 businesses in, somebody that can use that power, a  
21 co-use of that power. Somebody that partners with  
22 the state. Involve the economic development,  
23 redevelopment tools so that enterprise zones and  
24 those types of things locally. The, the taxes  
25 we're already collecting. The resources we

1 already have. What county or rural area with a  
2 dairy wouldn't want more jobs. And how many of  
3 those agencies or manufacturers wouldn't need  
4 power. Looking at the opportunity to, you know,  
5 sustainably, to bring jobs and sales tax and  
6 property taxes in a partnership, you know, to  
7 someone like a dairy, who has the potential to  
8 develop a resource, I think is very positive.

9           The other brief example is bio-diesel.  
10 I know that it's -- I don't know how small a  
11 portion, it's probably a very small portion, but  
12 the problems about soy and ethanol were mentioned.  
13 Nothing about the concept of all of the offal and  
14 waste grease that we ship. We're shipping jobs  
15 and we're shipping resources, you know, through a  
16 couple of companies, through Oakland and Los  
17 Angeles, very large volumes of material using more  
18 energy to ship it overseas, and somebody else  
19 ships it back to us as a product.

20           We need to harness those resources  
21 within our region and use them for economic  
22 development. And, and I think that is something  
23 that we have to kind of do a check every time we  
24 talk about these things, not only from the  
25 standpoint of not spending more resource to save

1 resource, but to involve the local folks in a way  
2 that they will be committed to this process, and  
3 they'll see the benefit. They'll understand the  
4 benefit.

5 And I'm afraid that, as, as strongly as  
6 I believe in the potential for cap and trade and  
7 some of these issues about, you know, multiple  
8 resources outside of California, I'm concerned  
9 that we're not going to connect those in a way  
10 that will bring the public and their elected  
11 officials along with us.

12 MR. CAVANAGH: So Mike, just so I -- it  
13 sounds like you're not objecting to what's here.

14 MR. MEACHAM: Absolutely not.

15 MR. CAVANAGH: You're just -- there  
16 should be something else here. And I hope you  
17 will help us devise it.

18 MR. MARK: Well, one way to, to  
19 correlate some of that concern, which I think has  
20 a little bit to do, or quite a lot to do with sort  
21 of where the, you know, what other ancillary  
22 benefits can we, can we articulate, just to go  
23 along with the carbon strategies in terms of jobs  
24 or, let's say, public health or environmental  
25 quality, is to really focus in on the offsets part

1 of this discussion, which is, you know, to -- do  
2 we really want to advance a strategy that solely  
3 allows compliance by, let's say, buying credits  
4 from Russia. And, and in reality, of course,  
5 that, that offers, you know, few of the economic  
6 benefits that come along with some of the other,  
7 let's say energy efficiency strategies that we  
8 might, that we might develop in, in state, to  
9 address carbon.

10 So that may be one, one avenue to sort  
11 of explore and exploit, I think, some of the  
12 public benefits, is to consider some adjustments,  
13 or let's say limits, as other regions have, RGGI  
14 and, and the European Union, on, on out of state  
15 offsets, certainly from non-cap sectors, but  
16 possibly elsewhere.

17 MR. MEACHAM: Human behavior, I think,  
18 has a way of getting around these things, you  
19 know, and, and we don't want to create a situation  
20 with the public where their concerns or their  
21 doubt about our solution forces them to work  
22 around it. I, I don't want to beat anybody up  
23 specifically, but an example of, you know, a power  
24 plant that was proposed to be developed in  
25 southern California did some really incredible

1 stuff. And when I testified I said, you know,  
2 mobile emission credits are a fabulous thing, we  
3 ought to do it, it's great, I applaud you for  
4 doing it. But when they retrofitted 100, 120  
5 trash trucks to go CNG, 85 percent of those trash  
6 trucks operated about 75 to 80 miles away from  
7 where the power plant operated, and only about 15  
8 percent did. That's a -- very microcosmic.

9 But, but it was just a little minor  
10 glitch that people didn't understand, and it  
11 really upset people and, and created doubt in a  
12 system that we don't want to create more doubt in.  
13 We need to make this local connection in a way  
14 that gives people a sense of trust that we know  
15 what we're doing.

16 MR. CAVANAGH: I'll just -- I think  
17 making that connection effectively and  
18 compellingly is, is a challenge in just  
19 introducing all the --

20 MR. HERTEL: It shouldn't be just this  
21 section. This is just the introduction to the  
22 entire --

23 MR. CAVANAGH: No, no. But I, it's a  
24 good theme, and I appreciate that.

25 MR. MARKS: Could I make a couple other

1        comments on the proposal --

2                MR. CAVANAGH:  Yeah.

3                MR. MARKS:  -- that Ralph, you and Jan  
4        have put forth.  First of all, I think it's, it  
5        really has set the bar for the other, other  
6        sectoral subcommittees, and I think this is the  
7        sort of thing that we want to, want to be headed  
8        towards in total for the, for the group.

9                But two specific comments.  One, I think  
10       one a voice of support, and one a voice of  
11       concern, specifically on this issue of -- that's  
12       identified as 3D, appropriately, perhaps,  
13       regarding the, the out of state coal.

14               I think the opportunity here is --

15               MR. CAVANAGH:  Not just out of state.  
16       Anywhere.

17               MR. MARKS:  Yes.  But the opportunity  
18       really is to generate leadership and to leverage  
19       out of state reductions.  I, I see one of the  
20       tremendous shortcomings of any California specific  
21       cap and trade program is, is not leakage in the  
22       traditional sense, we're not going to -- we're  
23       actually going to, you know, not be getting and  
24       delivering the same tons but that the Western  
25       Region in total may not deliver any net greenhouse

1 gas reductions, and that, of course, doesn't help  
2 the, the planet.

3 And if we feel like there are legal  
4 interstate commerce limitations to setting, for  
5 example, I think what would be helpful  
6 requirements for, for a carbon profile for  
7 imported power, so to say, we can't for example,  
8 for interstate commerce reasons, tag those as  
9 average power for the Western Region, then I think  
10 we really have limited tools for avoiding what  
11 ultimately does become, I think, carbon shuffling,  
12 not just electron shuffling, across the Western  
13 Region, with the California based system.

14 And this sort of proposal, which would,  
15 would address coal across the region in future  
16 years, creates a real opportunity, I think, to  
17 move the, move the region forward, and it also  
18 helps expand the list of technology options that,  
19 that the utilities will have down the road.

20 So I, I guess I -- I want to voice  
21 support for, for taking the opportunity to, in at  
22 least a specific case, to really move beyond just  
23 what California could do, but also use this  
24 authority to leverage adjustments throughout the  
25 system, even as, I think, we, we go out and try to



1 encourage the entire Western Region to, to buy  
2 into a, a regional cap and trade system. That was  
3 point number one.

4 Point number two, if I could, and I'll,  
5 I'll move quicker, is it seems to be an  
6 undercurrent -- apologies for the pun here -- of,  
7 perhaps implied, I want to test this, implied  
8 sense that in advancing multi-sectoral cap and  
9 trade as the, as the appropriate strategy, which I  
10 wholeheartedly agree with, that a power sector  
11 only cap and trade is not something the power  
12 subcommittee would support. And, at least from  
13 where I sit, I think that's a, that's a --  
14 somewhat of a politically short-sighted approach.

15 In other words, I'm hoping that, that as  
16 a committee we can, in fact, start to discuss a  
17 power sector only cap and trade, even as we  
18 describe, I think, the benefits of being far  
19 broader. There are clear economic benefits to  
20 thinking about multiple sectors. The power sector  
21 alone in California is large enough, including  
22 imports, to make it worth, I think, considering  
23 as, as we are in the modeling side of things, for,  
24 for specific policies around cap and trade. Even  
25 as I think we ought to explore, and I push us to

1 do this, explore cap and trade systems that  
2 include multiple sectors.

3 MR. CAVANAGH: I'll just -- from my, as  
4 I read this, it is deliciously ambiguous, in terms  
5 of --

6 MR. MARKS: Yes. I'm looking for  
7 clarity.

8 MR. CAVANAGH: I see. I don't think it  
9 comes down hard either way.

10 MS. SCHORI: That's why they made Ralph  
11 and I chair that --

12 (Laughter.)

13 MR. CAVANAGH: No one injects ambiguity  
14 better than she does.

15 MS. SCHORI: I'm going to write that one  
16 down.

17 CHAIRPERSON BOYD: Okay. Any other --  
18 Wendy.

19 MS. PULLING: Just, may I ask a couple  
20 of clarifying questions. I think hats off to you  
21 two, and Bud and others, for doing such a good  
22 first draft on this. It's helpful just to get it  
23 written down.

24 These may be more wordsmithing comments,  
25 but I'll ask them as questions. Three B talks

1       about projected, a plan that would have projected  
2       future greenhouse emissions. How about adding  
3       current and projected future, because most of us,  
4       I think, are in the registry, and we're, we're  
5       preparing our annual inventories, but there may be  
6       some out there that aren't yet.

7               MR. CAVANAGH: I think most of public  
8       power.

9               MS. PULLING: Well --

10              MR. CAVANAGH: Alas. But --

11              MS. PULLING: Not, not SMUD --

12              MR. CAVANAGH: SMUD -- SMUD not  
13       included.

14              MS. PULLING: So let's --

15              MR. CAVANAGH: Whenever I talk about  
16       public power, I now say SMUD not included.

17              MS. SCHORI: Not --

18              (Parties speaking simultaneously.)

19              MS. PULLING: I think most of them are  
20       in. But let's, we might as well be clear, current  
21       and projected future.

22              MR. CAVANAGH: Okay. I will be happy to  
23       stand corrected.

24              MS. PULLING: The other is in 3C, talk  
25       about -- looks like some of the policy options for

1       reducing greenhouse gas. You use a phrase here,  
2       establishing sustained progressing renewable  
3       energy targets. There's some vagueness there that  
4       could suggest to someone who's paranoid -- which  
5       I'm, of course, not -- that's just sustained and  
6       progressing forever and ever, ad infinitum. And  
7       so could we be more clear about that?

8               MS. SCHORI: Actually, this is a -- what  
9       did you just -- how did -- what did you say? Were  
10      deliciously ambiguous.

11             MR. CAVANAGH: A delicious nuance in --

12             MS. SCHORI: Actually -- and I went back  
13      and forth on this one a little bit, because Ralph,  
14      we started with a hard, the RPS percentages, and  
15      referencing the governors, and I think the  
16      commission, the PUC, have been talking about a  
17      higher number. I will tell you SMUD has adopted  
18      an RPS, and we're looking at accelerating it and  
19      doing all that stuff, and some of my folks are  
20      here that have been working on this.

21             But I will be honest with you. I am  
22      feeling a little deliciously ambivalent on one  
23      particular element of it, and that's what I did  
24      talk to Ralph about. We've gone out with our RFP  
25      and I have the responses in, and we've short-

1 listed and we're down to negotiations with the  
2 vendors that are proposing to build a variety of  
3 projects. We're looking at all sort of renewable  
4 technologies and potential contractors to do  
5 business with.

6 One of the key findings, though, that  
7 came back out of at least our RFP process, and I  
8 do not know if this is being experienced by others  
9 that are going out with an RFP, is, to my great  
10 disappointment, and I am attributing this in part  
11 to the fact that we have a hard fixed board-  
12 adopted goal that we have to achieve by a certain  
13 date, the bids, and the reason the board -- the  
14 board had a lot of policy objectives they're  
15 trying to achieve, and I assume they're the same  
16 things the state's trying to achieve, one of which  
17 was fuel diversity both in terms of actual fuel  
18 diversity, and in terms of minimizing our cost  
19 exposure to gas price indexes, because SMUD is  
20 heavily moving in the direction of becoming  
21 reliant on natural gas.

22 And to my disappointment, and this is  
23 one of the elements when we go to market-based  
24 solutions, many of our bidders view our  
25 alternative at SMUD as being natural gas. They

1       also recognize that we have a green power  
2       commitment. So we are basically seeing bids that  
3       have come back priced at gas price index plus a  
4       green adder, to meet our objective.

5               So as a result, I went back to Ralph and  
6       I said I am now uncomfortable with flatly stating  
7       that I am prepared to, to get to any particular  
8       percentage regardless of the price, when one of my  
9       key policy objectives is not being met. I'm  
10      getting the fuel diversity, but I am not getting  
11      the cost insulation from the gas price index.

12             So you've heard my impassioned speech in  
13      favor of this ambiguous language.

14             MS. PULLING: Okay.

15             MR. CAVANAGH: But, but three is a way  
16      to fix that.

17             MS. SCHORI: It's a good point.

18             MS. PULLING: It's --

19             MR. HERTEL: And, and the IOUs agreed to  
20      that in legislation which is to have a public  
21      goods charge, and the Energy Commission pass out  
22      bucks to subsidize above market-based renewables.  
23      So that --

24             MS. SCHORI: And SMUD does that, too.

25             MR. HERTEL: Up to a ceiling.

1 MS. SCHORI: That's our --

2 MR. HERTEL: Up to a ceiling.

3 MS. SCHORI: That's our current issue,  
4 but the -- my argument would be for the long-term  
5 policy implications of the state, we do not want  
6 to always be promising, forgive me, the green  
7 power industry that I'm going to pay them a  
8 premium. Why should I pay wind generators a  
9 premium right now. They should be competitive --

10 MR. CAVANAGH: But he has a good -- we  
11 haven't made that promise, actually. I think this  
12 is -- the, the promise of the investor-owned  
13 utilities is that there is a pool of money, and  
14 beyond this pool of money there ain't no more  
15 money.

16 MR. HERTEL: There ain't no more.

17 MR. CAVANAGH: But and, and so we --

18 MS. SCHORI: It is not in the muni RPS  
19 legislation, not to bring that up --

20 MR. CAVANAGH: But SMUD could establish  
21 -- well, but SMUD could easily establish that  
22 policy. And SMUD could say there is -- and public  
23 power could say comparable to the investor-owned  
24 utilities, we, this is our target, but this is the  
25 limit of what we will pay. And if all of those

1 targets and limits were synchronized across the  
2 state, we'd have --

3 MR. HERTEL: We'd have a much better  
4 situation.

5 MR. CAVANAGH: We have a competitively  
6 neutral renewables acquisition policy.

7 MS. SCHORI: But you're not achieving --  
8 you're basically committing yourself forever to  
9 have to pay more for green power, when I think one  
10 of our goals, from the state perspective, should  
11 be to assist in creating financial market based  
12 incentives for people to get closer and closer to  
13 be directly competitive with fossil fuel  
14 resources.

15 MR. CAVANAGH: That's --

16 MS. SCHORI: And not constantly -- not  
17 -- I can settle this. I always put solar in a  
18 different category, so put solar aside. I'm  
19 talking about bio-mass, wind, landfill gas,  
20 whatever the, you know, all the others ones  
21 we're --

22 MR. CAVANAGH: Only through 2012,  
23 effectively.

24 MS. SCHORI: Right.

25 MR. CAVANAGH: And after that --



1 MS. SCHORI: This group I think is  
2 trying to craft a --

3 MR. CAVANAGH: But that's -- so, but one  
4 way of -- one way could -- effectively, what we've  
5 got now with the IOUs is we have a commitment to  
6 add renewables that is actually potentially going  
7 out a couple of decades.

8 MS. SCHORI: Yes.

9 MR. CAVANAGH: But the commitment to pay  
10 a premium is limited and it only goes out for, at  
11 this point, seven more years. And I think, Jan,  
12 that's an interesting --

13 MS. SCHORI: We'll see what happens.

14 MR. CAVANAGH: That's an interesting  
15 combination. So you have a commitment to invest  
16 up front. You have a target. You do not have a  
17 long -- you do not say subsidies forever.

18 MR. HERTEL: By the way, the target --

19 MS. SCHORI: Well, no. The idea is  
20 you're supposed to be getting bids back, and  
21 people have an incentive to become more committed  
22 to --

23 MR. CAVANAGH: And let's remember, what  
24 the Energy Commission did with the first iteration  
25 of these subsidies was they, essentially they

1       created a reverse option. And they had --  
2       remember what they did? And Jan, I don't know why  
3       SMUD couldn't do this. They had the, they had all  
4       the renewables effectively bidding the lowest  
5       subsidy they would accept in order to generate.  
6       Which had the nice -- which, which absolutely did  
7       push all of the renewables sponsors to lower their  
8       bids.

9               MS. SCHORI: Mike isn't frowning at me  
10       yet. He's sitting right there, and -- but I, I  
11       agree with the points you are making. I, I think  
12       my fundamental philosophical objection is that  
13       when you take fossil fuel out of the competitive  
14       mix, and tell these guys they only compete against  
15       each other, you just turned it into a gas price  
16       index plus a renewable adder, as what they now see  
17       as their competitive benchmark to bid to you. You  
18       never get them bidding to beat out the coal plant  
19       or the gas plant.

20              And realistically, yes, we're always  
21       going to give points for the fact that these are  
22       more environmentally beneficial, but do you want  
23       to be locking into policy, I think forever, a  
24       signal that says the consumers of California are  
25       always going to pay more.

1 MR. HERTEL: Hence my objection.

2 MS. SCHORI: The consumers of California  
3 would like those resources, the technology, to get  
4 advanced to the point where they're competitive  
5 with coal and with gas.

6 MR. HERTEL: Hence my objection to 3D,  
7 as in dog.

8 MS. SCHORI: That's Ralph's. I'll let  
9 him talk about that one.

10 MR. HERTEL: Well, the point is well  
11 taken, and I think in, in defense of RPS, there is  
12 one more protection. And Ralph, you, you  
13 mentioned it, but I just want to focus on it. And  
14 that's that there is a legislatively set limit, 20  
15 percent of the energy by certain dates, right?  
16 So, now you have to be careful because as  
17 everybody loads up on that, the --

18 MS. SCHORI: The price is going up.

19 MR. HERTEL: -- price pressures go up.

20 MS. SCHORI: But there's --

21 MR. HERTEL: Yes, that's exactly right.  
22 And, as I keep trying to mention to folks, that as  
23 you rely more on wind, I mean, we're tapping into  
24 bio-mass very big time, but -- and geothermal,  
25 those are our two biggest segments. But, but as

1 we begin to develop wind, which is our, you know,  
2 we've got a lot now but we're going to need a lot  
3 more, our, our system gets thinner, and we have to  
4 have back-up. And, and the intermittency problem  
5 arises, so where you set that limit is critical.

6 But I submit that one way you can build  
7 in a protection for the muni sector, and for your  
8 company, would be to join in that kind of a, an  
9 approach, where you limit the total amount, you  
10 have a subsidy that's declared to be limited, and  
11 you have a duration of that subsidy so that as  
12 long as there's political will to hold to that,  
13 that should restore the market competitiveness  
14 that we've been talking about.

15 But you're right. As soon as you take  
16 out those elements, whether it's coal or other  
17 fossil, which happens now to be cheaper, you, you  
18 divert to the marginal cost, right, which is gas.

19 MS. SCHORI: Right.

20 MR. HERTEL: And, and that, that's  
21 the --

22 MS. SCHORI: I'm not saying there aren't  
23 ways, including, for us, to negotiate our way out.  
24 I was just disappointed that these were the bids  
25 that we got back, with the way they were priced,

1 and I wasn't hitting one of my key objectives.

2 And I wouldn't like, as a long-term policy, for  
3 the state, frankly --

4 MR. HERTEL: Me either.

5 MS. SCHORI: -- to be conceding up front  
6 that you're always going to pay more to you get  
7 these renewable resources. I think our mission  
8 should be to get those guys as competitive as  
9 possible, advance the technology, et cetera.

10 MR. MEACHAM: Were you really surprised?

11 I mean, every environmental initiative since the  
12 sixties in California, that's what's happened in  
13 the market. I mean, I can go through commodity  
14 after commodity. But the, what's happened, or  
15 what's changed, the city of San Jose bid out  
16 something, I think it was like recycled paper.  
17 And they said we're, we're really environmental,  
18 we're going to pay ten percent more. The next  
19 year, every bid came back ten percent more. You  
20 know.

21 And so they said, you know what, we're,  
22 we're one of the biggest markets in the Bay Area.  
23 We demand that you bid on our paper, we'll -- and  
24 we, it has to have recycled content. Give us your  
25 best price. We'll pick whoever provides the best

1 price. And a part of what helped them, I think,  
2 get there, was the state regulatory system had  
3 created a -- and the federal system, had created  
4 by then a post consumer content requirement. So  
5 the newspaper content and the white paper content  
6 at the federal level caught up with them, and that  
7 made that work.

8 I mean, that's the model. I'm not  
9 market economist, but there's time after time  
10 after time, when we do these green initiatives, we  
11 have to think about how markets operate, and we  
12 have to adjust our bid and negotiation process.

13 MR. CAVANAGH: Let me then suggest that  
14 -- why don't -- I think this has been an  
15 informative discussion. I just, I would hope we  
16 could invoke favorably the Energy Commission's own  
17 experience with the reverse option for renewables,  
18 which is exactly what Mike just described, in  
19 forcing bidders essentially to go head to head  
20 with each other to bid the lowest subsidy they  
21 would accept.

22 And, and Jan, I think linking -- the,  
23 the objective of trying to drive the prices to or  
24 below the fossil price was never more realistic  
25 than it is now. And we should try to see if we --

1       and if we could, for, also try to make clear that  
2       the objective here, though, is to establish a  
3       consistent goal across the entire California  
4       power --

5               MS. SCHORI: That, that word,  
6       consistent, would be very helpful. And, and I  
7       know that might be a problem for CMUA. But I  
8       think the problem that, that I think some folks  
9       may have is not that renewable energy is a key  
10      part of our solution tool box, but rather that  
11      sustained progressing with no limit ever set might  
12      give some people the impression that, you know,  
13      there's no limit. And --

14             MR. HERTEL: That's the reason you and I  
15      are there, Wendy, is because we have  
16      legislation --

17             MS. SCHORI: We've already -- right.  
18      And PG&E supported the RPS. We are going to hit  
19      it well before the deadline, so this isn't coming  
20      from a place of not supporting renewables. But I  
21      just think that the consistent, consistent target,  
22      I think, is clearer than this sort of a sustained  
23      progressing forever and ever type of target.  
24      Because at a certain point, whether it's price or  
25      feasibility, it's hard to imagine 100 percent

1       renewables, so.

2               I don't know, you know, I don't know if

3       CM --

4               MS. PULLING: Well, I was going to say,  
5       I -- I'll be honest with you, I'm reflecting on  
6       the comments that were made by the city of  
7       Healdsburg, which I think is at six percent  
8       renewables, or something. So really, when you've  
9       got 30 municipal systems, every muni is going to  
10      approach this differently. They have different  
11      targets. The difficulty we've gotten into when  
12      things get translated into a legislative vehicle  
13      are these issues about cost caps, about credit for  
14      prior action, all those kind of things.

15              So let me think about it, but I think,  
16      as Ralph said, we'll try to do it -- there's  
17      probably some --

18              MS. SCHORI: If Ralph and I can agree to  
19      it, then --

20              MR. CAVANAGH: Right. She, she's right.  
21      She's going to be around for a while, now. Nobody  
22      had a problem, I, I take it, with one and two,  
23      with endorsing what the PUC is doing.

24              MR. HERTEL: There's no point in having  
25      a problem about that. It's done policy.



1                   MR. CAVANAGH: And nobody has a problem  
2 with endorsing the expansion of the California  
3 Registry model to the west.

4                   MS. PULLING: No. Support it. But  
5 mention it explicitly.

6                   MR. CAVANAGH: Yeah. I, I actually, I  
7 would encourage us to invite the California  
8 Registry, if Jan will -- Jan, will you allow us to  
9 aspire to having the California Registry expanding  
10 its activities across the west?

11                  MR. HERTEL: Why set up a duplicate?  
12 They're already --

13                  (Parties speaking simultaneously.)

14                  MS. PULLING: They're trying to do that.

15                  MR. HERTEL: They're dropping out,  
16 rather than adding. That's the problem.

17                  MR. CAVANAGH: Let's give them a boost.

18                  Then I, I think we've got enough,  
19 certainly, to, to do some revisions and try again.  
20 For which I am most grateful.

21                  MS. SCHORI: I also think that  
22 eventually, when the other, the other sector  
23 groups have a, a similar type paper, I think we'll  
24 look at them all together, and -- and yeah, make  
25 sure we're consistent and make sure we haven't

1 sort of said something in one paper that messes up  
2 another.

3 CHAIRPERSON BOYD: There's a public out  
4 there that we don't have much time to hear from.  
5 And I would invite them to send written comments  
6 on all our subjects, to the extent we don't get,  
7 that we run out of time and don't hear from them.

8 MR. CAVANAGH: But, Mr. Chairman, could  
9 I also ask, if Mike would be -- I would like to  
10 ask Mike actually to write a couple of  
11 introductory paragraphs to the whole, the group's  
12 -- if he would take that on, because I think that  
13 would -- and that's --

14 MR. HERTEL: What are you talking about  
15 me, Jim?

16 (Laughter.)

17 MS. BROWN: All right. Thank you.

18 CHAIRPERSON BOYD: Okay. I'd just like  
19 to, in, in the spirit of coal -- I can't believe I  
20 said that -- a lot's been happening on this  
21 subject lately. Two weeks ago the CalEPA  
22 secretary actually talked about the need for clean  
23 coal electricity in the state. And the, we are  
24 planning an IGCC hearing as part of our integrated  
25 policy report preparation later this summer

1       sometime. We decided to do that a few weeks ago,  
2       before getting hammered here today. We haven't  
3       set a date, so the subject's making progress.

4               All right. Susan.

5               MS. BROWN: I also wanted to mention  
6       there's a hearing on combined heat and power,  
7       which I think will have some greenhouse gas  
8       implications, on I believe April 21st, at the  
9       Commission, as part of the IEPR, so another,  
10      another one. Lots going on.

11              I think at this point, and I want to  
12      thank Ralph and Jan for their, for setting a new  
13      standard for the other subcommittees, and we'll  
14      have a lot of interaction offline and through  
15      conference calls in the next week, to create  
16      similar pieces, I think, on the other topic areas.

17              But I think now we're at the point for  
18      public comments, and I've received requests from  
19      three, three individuals to speak. First is Dr.  
20      Andy Frank, from UC Davis. I also have a card  
21      here from Michelle Passero, Pacific Forest Trust,  
22      and -- I'm sorry, and Andrew Hoerner also wants to  
23      speak, from Redefining Progress.

24              So, Andy Frank I believe is the first  
25      one that approached me, and I'll let the other two

1 battle it out as to who wants to go next. And you  
2 can speak from there, Andy, or here -- or here.  
3 Whatever suits -- do you want to come up here?

4 DR. FRANK: I have a presentation --  
5 it's this one right here.

6 MS. BROWN: That one. Okay, we'll look  
7 at the -- that one there.

8 DR. FRANK: I think that's it.

9 MS. BROWN: We need a SMUD IT person.

10 (Inaudible asides.)

11 CHAIRPERSON BOYD: Susan, while you're  
12 looking for an IT person, can we have one of the  
13 other people speak while we try to fix it?

14 (Inaudible asides.)

15 CHAIRPERSON BOYD: Susan, while they  
16 work up there is there someone who wants to speak  
17 who doesn't have a power point, and we, if we get  
18 that mic to broadcast?

19 (Inaudible asides.)

20 MS. PASSERO: I'll just speak briefly,  
21 because I know everybody wants to go home. I'm  
22 Michelle Passero, with The Pacific Forest Trust.

23 CHAIRPERSON BOYD: All right. Let's --  
24 can we defer -- we have a speaker here. Can we  
25 get a little quiet in the room, please.

1 All right, Michelle.

2 MS. PASSERO: Thanks. Well, first of  
3 all, thank you. I think this is a great effort,  
4 and it's really nice to see the state and all the  
5 multi-stakeholders working towards solutions to  
6 address this issue of climate change, which is  
7 very complex.

8 I see that you are recommending a  
9 portfolio type approach, at least that seems to be  
10 what's evolving. So in this vein, I would like to  
11 encourage you to also include the forest sector.  
12 You know, at the global level it is the second  
13 largest source of CO2 emissions, human caused CO2  
14 emissions, and this is largely due to forest loss.  
15 So forests are not only a mitigation technique,  
16 they are a source of CO2 emissions.

17 And we do have similar issues here in  
18 California as far as forest loss is concerned. We  
19 are starting to lose our -- well, not starting,  
20 but we're losing forests at increasing rates. And  
21 so when we lose our forests, we do lose the CO2 --  
22 the carbon dioxide that's stored within the  
23 forests. And we also lost their continuing  
24 capacity to absorb carbon dioxide. Not to mention  
25 all the other public advantages that we have

1 through our forests. So there are multiple  
2 effects that we suffer due to forest loss.

3 The state has recognized this issue  
4 through Senate Bill 812, which amended the  
5 California Climate Action Registry to include a  
6 framework for the registration of forest carbon.  
7 Subsequently, through a multi-stakeholder effort,  
8 forest protocols, and I'd like to say the first of  
9 their kind, really, in being so comprehensive,  
10 were adopted last fall. And these protocols  
11 provide the opportunity to gage and monitor at the  
12 individual level climate progress that we can make  
13 through reforestation, conservation, or the  
14 prevention of conversion, and also through changes  
15 in forest management.

16 There is also effort, through the CEC  
17 and research, the regional partnership, looking at  
18 a state level, statewide forest carbon baselines  
19 and opportunities there. This also provides a  
20 great opportunity to gage, again, progress at the  
21 state level relative to forests over time. How is  
22 the state doing, based on, you know, whatever  
23 policy incentives it develops for the forest  
24 sector.

25 So I encourage the committee to, one,

1 recognize the role of forests in the climate  
2 change problem and solution, but also to seize the  
3 opportunities and tools that have already been  
4 developed through state efforts and multi-  
5 stakeholder efforts, low hanging fruit. And  
6 certainly we're happy to help. I know of other  
7 stakeholders who are also happy to do that, and  
8 there are clean air policy opportunities that we  
9 could discuss.

10 Thanks.

11 CHAIRPERSON BOYD: Thank you. And I  
12 just want to echo that, that as we've worked on  
13 the forest issues, the protocols and what have  
14 you, the body of stakeholders out there have been  
15 and continue to be -- have been very helpful, and  
16 I guess they want to continue to be helpful. And,  
17 and I think that's very good.

18 There, there is quite a reservoir of  
19 knowledge here, and I was talking earlier in the,  
20 in the meeting, that we need to plug in that  
21 reservoir of knowledge to our subcommittees  
22 working on this subject, because there's been an  
23 awful lot done, and we need to catch them up to  
24 speed.

25 It would be nice if all of us could sit

1       and listen to some of it in one of these meetings,  
2       but I'm beginning to realize that we're going to  
3       overwhelm the agenda of these once in a while,  
4       one-day meetings if we're not careful, so we're  
5       going to rely heavily on the subcommittees too, I  
6       think.

7               Andy, I see you, you found yourself.

8               DR. FRANK: I found myself.

9               Okay. Well, those of you who know me,  
10       I'm Mr. Plug-in, I guess.

11              CHAIRPERSON BOYD: The godfather of  
12       plug-in.

13              DR. FRANK: The grandfather, or father.  
14       My daughter has a new brother, plug-in hybrid.

15              Anyway, what I'm talking about is the  
16       concept of taking our light duty vehicles, and I,  
17       I think that's what I want to focus on, is light  
18       duty vehicles. It's about 25 percent of the  
19       greenhouse gas emissions in the state of  
20       California, on that order.

21              That's a pretty big sector. And the  
22       question is, what can we do, outside of keeping  
23       people from driving a car. That's not going to  
24       happen, of course. So the solution that I'm  
25       proposing here is the plug-in hybrid. It is



1       designing our cars, and we already have hybrid  
2       cars designed, Toyota and Honda are already  
3       building them. The next step in hybrid technology  
4       is to increase the battery size fundamentally, and  
5       then take energy out of the wall, electrical  
6       energy out of the wall, and you plug in at night.

7               Now, I just heard this whole discussion  
8       on electric energy and, and how we're going to  
9       sequester, and all that. Does this, does this say  
10      that we're going to use more electric energy?  
11      Well, yes, but it depends on where you use it.  
12      These plug-in hybrids, the most important thing is  
13      you don't have to charge them. If you do charge  
14      them, you charge them at night. And that means  
15      you use night-time electricity. And that's  
16      critical here.

17             I think -- let's see. Yeah, there we  
18      go. The current situation with light-duty  
19      vehicles, that they're a major contributor to CO2,  
20      the first thing is there's no doubt, gasoline is  
21      going to continue to rise. No doubt about it.  
22      It's happening, and happening fast. Plug-in  
23      hybrid is a, a solution to give the U.S.  
24      transportation and energy an alternative now.

25             We have to, we have to go from place to

1 place to keep our business going. So what happens  
2 if we have a gas shortage and we have gas  
3 rationing? Well, people can't get their job done,  
4 the economy takes, takes a hit. But if we had a  
5 plug-in hybrid, we could be using electricity to,  
6 to at least get us by on a daily basis. The cost  
7 of electricity remains stable. Night-time  
8 electricity is about two-thirds the cost of --  
9 night-time electricity is two-thirds of the daily  
10 peak. So, in other words, we generate only two-  
11 thirds of the power at night than we generate  
12 during the peak of the day.

13 But plug-in hybrids are not currently  
14 being produced by the car companies, so what we  
15 really need to do is to incentivize the car  
16 companies to encourage them to produce these plug-  
17 in hybrids.

18 Here's a CO2 emissions for gasoline  
19 plug-in hybrids, compared with the no plug  
20 conventional cars. And note ethanol has no CO2  
21 cycle impact, as you can grow the ethanol. You  
22 take CO2 out of the air and you make plants, and  
23 then when you burn it, you create the CO2. So the  
24 net impact is relatively zero. That CO2 is one-  
25 eighth at, at a 60 mile all electric range.

1                   So what we've done here is a study which  
2           compares a conventional vehicle and a, and the CO2  
3           emissions -- well, yeah. What?

4                   MS. BROWN: I think that was the city of  
5           Chula Vista.

6                   DR. FRANK: Well, okay. Here's the  
7           total CO2 emissions, which includes a fuel cycle  
8           emissions, as well as in vehicle emissions on a  
9           conventional vehicle, on a dual range hybrid, it's  
10          like a Toyota Prius and a Honda, Honda Insight,  
11          more like the Toyota Prius. And if you increase  
12          the battery size and give it 20 miles of electric,  
13          all electric range, you could plug in and you  
14          drive the first 20 miles all electrically at zero  
15          emissions and zero -- well, no, not zero CO2,  
16          because you have to use some electricity.

17                  But here's the total CO2 emissions,  
18          including electric use for a 20 mile range hybrid,  
19          and here's, here's the total CO2 use for a 60 mile  
20          range hybrid. But the point being is the total  
21          CO2 for one of these 60 mile range hybrids is less  
22          than half the conventional vehicle. So there's  
23          some real benefit in, in the plug-in hybrid.

24                  Now, if -- I'm not sure whether or not  
25          my ethanol friends are still here, but if they

1        were here, if a 60 mile range hybrid is designed  
2        for ethanol and electricity, then the national  
3        ethanol production today for we use -- we use  
4        ethanol for RFG right now, and so we buy ethanol,  
5        we blend it with gasoline, and here is the amount  
6        of ethanol we would use for a 60 mile, for a  
7        conventional vehicle. And the conventional  
8        vehicle on an annual basis uses 530 miles -- 530  
9        gallons of gasoline.

10                But if we built an ethanol burning plug-  
11        in hybrid, that same amount of ethanol could  
12        displace all the gasoline used by that car on an  
13        annual basis. In other words, here the 60 mile  
14        range hybrid would use no gasoline at all. So  
15        that's possible.

16                And here's, this is the city of  
17        Sacramento, night-time electricity and peak  
18        daytime electricity. The question is, if you  
19        were, if you were to introduce this technology, at  
20        what point would you completely fill in the  
21        valley. Well, this, this picture shows filling in  
22        half the valley would about 20 percent of the  
23        vehicles, 20 percent of the fleet population in  
24        the, in the city of Sacramento. If you went to 40  
25        percent, you will fill in the entire valley.

1                   How long would it take us to get that  
2           point? I, I would say it'll take minimum 15 to 20  
3           years to get to 20 percent, and maybe longer to 40  
4           percent. And that gives us plenty of time to  
5           build renewable plants.

6                   Incremental costs in hybrids. Yes. As  
7           you, here's a conventional vehicle, here's a  
8           Toyota Prius. It's, you pay a premium for that,  
9           but -- and a 20 mile range average, you pay a  
10          little more premium for that. And a 60 mile range  
11          hybrid, you pay a little more premium. So this is  
12          going to cost a little more. So, I mean, at least  
13          at the current time, and if you study these  
14          charts, I've got all, I've got all the components  
15          that go into making the car. The glider is the,  
16          the main body, and all the, all the features  
17          within the car. Engine exhaust system,  
18          transmission, they're all labeled here. But the  
19          biggest part of the incremental cost is the cost  
20          of the batteries.

21                   So, we did a study in which we, we  
22          looked at the market potential as a function of  
23          price. For a zero range hybrid, this is the  
24          Toyota Prius, and the Toyota Prius figure is right  
25          about here now. The base price is \$19,000, and

1 the Toyota Prius now -- I mean, if it were the  
2 same size as, as -- this is a Chevrolet Lumina,  
3 the same price, it would be about \$23,000 -- yeah,  
4 around \$23,000.

5 This is the curve for a 20-mile range  
6 hybrid. This is the curve for a 60-mile range  
7 hybrid. Why did these curves change? It's  
8 because there's more features. For example, if  
9 you have a 60-mile range hybrid and you plugged it  
10 in every night, the average person would only go  
11 to the gas station four or five times a year. The  
12 rest of the time, he's, his energy is all coming  
13 out of the wall. So there are additional features  
14 that people are willing to pay for.

15 Okay. So the key is how to incentivize  
16 the, this concept for the car companies to build  
17 these cars, and meet a 50 percent market share. I  
18 think we can get to -- well, according to this,  
19 you can get to 50 percent market share if the  
20 incremental cost for a zero range hybrid were  
21 about \$2,000, instead of four. And you can get to  
22 50 percent market share if the 60-mile range  
23 hybrid at a, at a incremental cost of \$5,000.

24 So, this now gives us a way for us to  
25 incentivize the car companies to build these

1 things. So the needed incentives for the car  
2 companies to produce the plug-in hybrids, get an  
3 incremental cost down to allow 50 percent market  
4 penetration, for 20 and 60-mile range hybrids.  
5 Provide incentives to get the car companies  
6 started. Incentives should decrease as time goes  
7 on. And, of course, the idea of any incentive is  
8 that it eventually disappears and the market  
9 supports itself.

10 So the state -- so how can we do this?  
11 Well, here are some suggestions. The state could  
12 partially pay for the incremental cost for the  
13 first five years to American manufacturers of  
14 plug-in hybrids. Notice that American  
15 manufacturers are just beginning to think about  
16 hybrids, and if the state were to incentivize  
17 American car companies, that's GM and Ford,  
18 there's only two of them now, they could leap  
19 ahead of Toyota in terms of technology.

20 To provide 50 percent market share for  
21 these plug-in hybrids, and a 60-mile range hybrid  
22 was 27,000 in the previous chart, minus 25,000 is  
23 the 50 percent market share. And that means the  
24 subsidy only has to be 2K per car. And that's  
25 not, that's not too bad. The state now, the state

1       could provide additional incentives for, like, for  
2       example, plug-in hybrids using -- having a carpool  
3       lane access, parking privileges, and so on.

4               These are just additional incentives to  
5       get people to buy the, the vehicles. These are  
6       incentives for the car companies to build the, the  
7       things. And, of course, if the power companies,  
8       SMUD and SCE, and so on, were to provide night-  
9       time rates for plug-in hybrids, that just makes it  
10      possible. By the way, plug-in rates at Southern  
11      California Edison I think is six cents a kilowatt  
12      hour. When you plug in your car at six cents a  
13      kilowatt hour, and we've built these cars and  
14      we've measured it, it's equivalent to being able  
15      to buy gasoline at 50 cents a gallon.

16             So the incentive for a plug-in hybrid is  
17      economic. It is, has nothing -- the, the average  
18      person has -- the average person who really  
19      doesn't care about air quality or anything, only  
20      cares about his pocketbook, would plug it in  
21      primarily to save money.

22             Okay. That's my presentation, and  
23      you're -- this is all for your education. And if  
24      you have any questions, please give me a call.  
25      It's on the -- and I'll be happy to answer any



1 questions. Yeah.

2 SPEAKER: How big are the battery packs  
3 for just the standard ATV and an ATV plus 20, and  
4 an ATV plus 60?

5 DR. FRANK: Yeah. The 60 mile range  
6 battery packs, we've built these cars already, we  
7 put the batteries underneath the floor and there's  
8 not one -- one square inch, or one cubic inch of  
9 space taken up inside the passenger -- it's  
10 completely doable. And we, we've already built  
11 ten of these cars. We've built cars from small  
12 sports cars all the way up to a full size SUV.

13 I, I neglected to put the pictures up  
14 here, but if you want I could drag them -- so  
15 it's, so what we have done at the university is  
16 demonstrate this is doable technology. The main  
17 thing is, the main thing now is the car companies  
18 are, are not doing anything. You know, they're  
19 putting their money into fuel cells, which is so  
20 far out it's not going to do us any good in Iraq,  
21 that's for sure.

22 So the prices are rising faster than,  
23 than the -- I mean, in 20 years who knows what the  
24 price of oil is going to be. But I can guarantee  
25 it's going to be a lot more than it is now. And

1       we're going to be paying a lot more per gallon.  
2       So this gives us an alternative. And the, the  
3       cost of electricity, especially if we invest -- in  
4       renewable sources, as the state is supposed to do,  
5       it won't, the cost of electricity will remain  
6       stable. And that means you and I, all of us, will  
7       be able to get our daily missions accomplished  
8       without having a, impacting our society. Which  
9       could happen easily, if we have certainly a  
10      disruption in oil supply.

11                So besides the -- so the plug-in hybrid  
12      really has multiple attributes. One of them is  
13      CO2 reduction, another one is energy supply  
14      security, and, of course, overall emissions  
15      reductions. By the way, these cars, when they're  
16      running around, are zero emissions. When they're  
17      running on electricity, 90 percent of the time  
18      they're zero emission.

19               MR. MEACHAM: You said 90 percent of the  
20      time. That was one of my questions, was what you,  
21      you alluded when you talked about only plug-in --  
22      only putting gas in the 60-mile car twice a year.  
23      But the average trip on the 20, would that be a --

24               DR. FRANK: Yeah, that's right. The  
25      average trip is 20 miles, or something like that.

1 But, so on a daily basis, the average person daily  
2 commute is -- daily, daily use of the car is 40  
3 miles. So if you had a 60-mile range hybrid, and  
4 we've designed these things so they can operate on  
5 electricity up to full freeway speeds, it would be  
6 -- you would use essentially no gasoline at all,  
7 or liquid fuel at all, on a daily basis.

8 And so that means when do you use liquid  
9 fuel. Only on weekends, and, and vacations.  
10 That's it. So we did our calculations based on  
11 the average 12,000 miles a year average use of  
12 automobiles.

13 MR. MEACHAM: It also kind of gets back  
14 to that smart community or sustainable growth.  
15 And I know that we've talked about other cities  
16 have -- we did some sales with some of the, the  
17 things that Chrysler and Ford did on their  
18 electric vehicles, and have put some plans in  
19 place to site some of our city PV systems at  
20 places like post offices and parks and things, so  
21 that people can extend those trips, so up at the  
22 end of that line they have a place that they can  
23 plug in. If they have an 8 or 10 or a 15 mile  
24 commute to work, then they have the potential to  
25 extend that.

1 DR. FRANK: Yeah. The difficulty with  
2 pure electric car, as compared to this plug-in  
3 hybrid, is that you are dependent upon the charge  
4 in the batteries. The plug-in hybrid, you don't  
5 have to charge it. If you don't charge it, it's  
6 just like a Toyota Prius. They go anywhere you  
7 have liquid fuel.

8 So, and there's no need to charge. We  
9 could call this a plug option instead of a plug-  
10 in. All right.

11 CHAIRPERSON BOYD: Thanks, Andy.

12 MS. BROWN: Our next speaker is Andrew  
13 Hoerner.

14 (Inaudible asides.)

15 MR. HOERNER: Hi. I'm Andrew Hoerner.  
16 I'm Director of Research at Redefining Progress.  
17 It is truly -- no, I don't want that yet. I don't  
18 want that yet.

19 MS. BROWN: Okay.

20 MR. HOERNER: Thanks. It's a pleasure  
21 to speak to the die-hard members of the committee,  
22 and an honor. I, I hope you will convey my gems  
23 of wisdom to the members who need them most, as  
24 the months progress.

25 I want to talk a little bit about some

1 of the bigger picture issues associated with  
2 trading system design, and in particular, I want  
3 to remind people that the, that what the  
4 scientists are telling us is that in the long run  
5 we're looking at 60 to 80 percent reductions from  
6 current levels.

7 Now, you know, to the committee, that's  
8 like, that's like that's a long ways away, right,  
9 and it's -- so, I mean, to worry about just with  
10 what can be done in the near term. But I think  
11 there's a reason to remember that these deeper  
12 cuts are where the system is going, and that  
13 reason is that inefficiencies and inequities which  
14 are, which are tolerable at, you know, two percent  
15 or five percent, or even ten percent cut levels,  
16 become magnified as the magnitude of the cuts  
17 become larger. And they, you know, these rather  
18 modest seeming problems that with the five percent  
19 cut will turn into extremely painful problems with  
20 a 20 percent cut. And to get past that, you start  
21 looking at like economic disasters.

22 And so I want to stress several features  
23 that I believe that we should try to build into  
24 the system at this point, so that we don't have to  
25 worry about these issues later on.

1           And the first thing is an obvious point  
2       that I think several people have addressed today,  
3       that we want the trading system to be  
4       comprehensive, that it should cover all fuels and  
5       all sectors. And I think that's, that's an  
6       important point because certain trading approaches  
7       which work well in some sectors don't work well in  
8       others. So a constraint that says that you're  
9       ultimately going to a system that covers all fuels  
10      and all sectors pushes you in the direction of, of  
11      certain kinds of trading systems. And, in fact, I  
12      think it in particular pushes you in the direction  
13      of, of a purely conventional cap and trade type  
14      system, rather than the sort of more elaborate  
15      output based systems.

16           The second point I'd like to make is a  
17      point that was made in today's presentation, but  
18      only very briefly. And I think the brevity is  
19      inappropriate, given the importance of the point.  
20      And that is that because the cost of reduction  
21      applies to the marginal unit of production, the  
22      cost of production will enter the price. And it  
23      will therefore apply on sale, reduce revenue, on  
24      every unit of production, not just the marginal  
25      units of production.

1                   So what that means is that a trading  
2           system raises somewhere between eight and twenty  
3           times as much revenue as is actually used to  
4           achieve the emission reductions. That's based on  
5           the literature that's out there now. So eight to  
6           twenty times as much revenue, you know, at a two  
7           percent reduction, that's no big deal. But when  
8           you start getting into larger reductions, you're  
9           talking huge, huge transfers of resources. And so  
10          we believe that it's very important to establish  
11          from, from essentially the beginning, a principle  
12          that the trading system will not create large  
13          windfall profits. And we believe the proper way  
14          to implement that principle is, is through  
15          auctioning the, public auction of most, at least,  
16          of the permits.

17                 The fourth point I'd like to make is  
18          that there's a second reason for that auction of  
19          -- for, for believing that some, some, and we  
20          believe most of the permits should be auctioned,  
21          and that is that as we look even at the range of  
22          alternatives that have been considered today, a  
23          number of them require quite substantial capital  
24          investment. And sources of that capital are not  
25          necessarily obvious. We, capital is necessary for

1       sustainable transport, for renewable development,  
2       perhaps for smart growth, in promotion of smart  
3       growth and infill development, and as well as for  
4       offsets of the higher energy prices, the burden of  
5       higher energy prices on low and moderate income  
6       households.

7               Auction permits provide revenue adequate  
8       to do all those things, and I'd be very happy to  
9       talk to members of the committee. We've been  
10      doing quite a bit of research about how much it  
11      costs to deal with each of these problems, and we  
12      have, for instance, really excellent data on, on  
13      distributional burdens and how to offset them.  
14      But the short answer is that with just a portion  
15      of the -- we think about 35 percent of the revenue  
16      from an auction permit system you can offset most  
17      of the negative social consequences, including all  
18      of the distributional consequences.

19             The final principle that I'd like to  
20      enunciate is one that we have, I think, been  
21      talking about a good bit today, and that is that  
22      we believe that the -- that the carbon emissions  
23      that this commission should be looking at are the  
24      emissions associated with consumption in  
25      California, rather than the emissions associated



1 with production in California. And the reason for  
2 that is very straightforward.

3           You know, if, if a California consumer  
4 purchases a product that's made outside of  
5 California with greenhouse gases, those greenhouse  
6 gases go into the air just as much as if a  
7 California consumer purchased it from inside the  
8 state. So if you manage to drive California  
9 production out of the state, you have an -- you  
10 have an economic harm to California with no  
11 offsetting environmental benefit, and this is the  
12 leakage problem that everybody is familiar with.

13           What I don't think has fully penetrated  
14 the committee, based on discussions that I heard,  
15 we heard today, and I wish some of those  
16 discussers were still here, is that as the  
17 permitting system is, you know, further ramped  
18 down and the cost increase becomes greater, RGGI,  
19 a RGGI type system basically becomes an incentive  
20 for simply producing all your power outside of the  
21 state. And all, all you have to do is have the  
22 permit price reach the cost of building new power  
23 lines, and the power, you know, fossil based power  
24 production in California drops to zero.

25           I don't think that's what the utility

1       representatives in the state actually want. And  
2       I'd like to exercise my sadistic tendencies by  
3       putting graphs at the board at the very end of the  
4       day. And so let me do that. Okay. There we go.

5               Okay. I'm going to skip this slide, and  
6       just -- this is the icon of all economics, the  
7       supply and demand graph. I assume everyone here  
8       has seen it before. But it's a kind of a funny  
9       graph, in a way, because almost all real economies  
10      are open, and open economies don't, don't look  
11      like this; they look like that. That is to say  
12      that in addition to the domestic supply, or  
13      demand, there's some world supply, some world  
14      price.

15             And, you know, the usual thing that  
16      everybody learns in Econ 101 that, that the market  
17      clears where supply equals demand, doesn't, isn't  
18      -- doesn't hold true when the market is open like  
19      this. Instead, instead the amount produced is  
20      that amount, little b, and the amount  
21      consumed is that amount little d, and the  
22      difference is imports. Okay. So that's, that's  
23      what you'd expect .

24             Now, what happens in this setting, when  
25      the good supply is polluting and you put some kind

1 of a fee on it, well, you can see what happens.  
2 The price is still set by the world market. The  
3 new supply curve is higher than the old supply  
4 curve by the additional cost. The new domestic  
5 production is little a, the domestic consumption,  
6 that's the in-state consumption in the case of  
7 California, is little d, which hasn't changed at  
8 all. Okay.

9 So there's no change in, in consumption,  
10 and so there's absolutely no change in  
11 environmental burden on the world. The only thing  
12 that's happened is that your imports and driven  
13 business out of the state. So, I mean, this is  
14 assumes perfect markets and no costs of  
15 transportation, and so forth. But, you know, I've  
16 done all this with all these imperfections and you  
17 get kind of the same result, but not quite so  
18 extreme. Okay. So, so that's an unhappy result  
19 for those who want to use market mechanisms.

20 But what happens if you apply that same  
21 charge that you put on your domestic producers to  
22 imports, as well. Well, you can see we've added  
23 this, the final line there. This is, it's got,  
24 it's increased by the same amount. You can see  
25 that it's increased by the exact same amount.

1       The, the world, or the national supply has  
2       increased by the exact same amount as the domestic  
3       supply has been increased by.

4               And now, what happens is that at the end  
5       of the day there's absolutely no change in  
6       domestic production, none whatsoever, but there's  
7       a reduction in domestic consumption, and so  
8       there's an environmental benefit. So, and I, I  
9       think that this graph is useful, you know, it's a  
10      useful puristic tool. It's a way of like  
11      reminding ourself what's going on with these  
12      trading systems, and to -- and, and it's a way of  
13      reminding ourselves that the, the -- what are we  
14      calling them -- load based as versus output based,  
15      that the output based systems don't work. They  
16      are broken. They are broken from the beginning.

17             And frankly, I think we're seeing that  
18      with RGGI now, that if you look at the reductions  
19      that the power -- that the economic analysts are  
20      projecting from RGGI, and you break those  
21      reductions into three pieces, the part that's  
22      caused by unfunded energy efficient -- new energy  
23      efficiency programs, the part that's caused by  
24      leakage, and the part that's actually caused by  
25      the tradeable permit system, well, I, I urge that

1        endeavor on people because I think you'll find  
2        that the results don't bode well for the survival  
3        of the RGGI system.

4                So I'm very pleased to see that the  
5        folks here in California are getting off on a  
6        different foot, and I hope that we'll stay on that  
7        foot.

8                One final thing I'd like to say is that  
9        this same, this principle we've just seen is  
10       exactly the same -- for electricity, is exactly  
11       the same principle that we need to solve the  
12       problem of cement that was raised earlier today,  
13       and, indeed, of all extremely energy intensive raw  
14       materials. You, what you really need to do if you  
15       don't want to drive those people out of the state,  
16       is to rebate the -- what they paid for credits on  
17       their own exports from the state, and require  
18       importers of -- and we're only talking about a  
19       tiny handful of raw materials here, you know.  
20       It's cement and chlorine and -- it's a short list,  
21       and I'd be happy to talk to people about what's on  
22       that list.

23               But what you need to do is require that  
24       importers buy permits as if they had done  
25       production in the state. And if you do that, you

1 completely immunize state, in-state producers from  
2 all problems with -- with domestic and  
3 international competitiveness from the system. And  
4 you also achieve environmental benefits instead of  
5 economic harm.

6 And so that's, that's all I -- I've got  
7 a nice little paper on this. If anybody wants to  
8 see it I'd be happy to send it to you. And, oh,  
9 one final sort of aside. My original training is  
10 in law, and I actually did a Law Review article on  
11 some of these interstate commerce issues  
12 associated with this stuff a number of years back.  
13 You can use regional averages as long as you  
14 provide people the opportunity to prove that their  
15 particular product is below the regional average.  
16 And that's a system that's actually been used by a  
17 number of states and also by the United States in  
18 dealing with dealing with GAT issues relating to  
19 the superfund toxic -- no, I'm sorry, the ozone  
20 depleting chemicals tax.

21 So --

22 MR. HELME: Would you, would you agree  
23 with Ralph's contention that you could also  
24 establish coal a default value that's higher than  
25 the average, and --

1                   MR. CAVANAGH: As long as you give  
2                   people a chance to -- and Andrew, as long as you  
3                   apply it in a non-discriminatory way to all power  
4                   sources inside and outside California, because I  
5                   think --

6                   MR. HOERNER: I think as long as you  
7                   give people an opportunity to prove that they're  
8                   sending you low carbon power, the fact that you  
9                   have a -- yes, you'd have to apply the same  
10                  default in the state and outside the state.  
11                  That's right. So, yeah, I think that's absolutely  
12                  correct.

13                  Okay. Thanks. It's been a long day,  
14                  and a pleasure.

15                  MR. CAVANAGH: Great stuff.

16                  MS. BROWN: Is somebody still on the  
17                  line? Yes.

18                  MR. PARKHURST: I had a question for the  
19                  speaker. This is Robert Parkhurst. Can you hear  
20                  me now?

21                  MS. BROWN: Oh, that's Robert Parkhurst.  
22                  Just a moment, Robert.

23                  MR. HOERNER: Yes, this is Andrew  
24                  Hoerner.

25                  MR. PARKHURST: I had a question.

1       You're talking about doing this economy-wide. Is  
2       that correct?

3               MR. HOERNER: Well, I was talking about  
4       doing it in the state of California, but I would  
5       say that all the same things are true if you were  
6       doing it for the entire country.

7               MR. PARKHURST: Well, I mean, economy-  
8       wide in the state of California, so for any --  
9       that you would assign a, a carbon tax, if you  
10      will, to it. Is that correct?

11              MR. HOERNER: Well, I think we've done  
12      quite extensive analysis on this. I have a long  
13      series of papers on preserving the competitiveness  
14      of energy intensive industries in the context of a  
15      carbon strained world. We believe that it's, yes,  
16      you want to do it economy-wide, but it, it's only  
17      necessary for a tiny handful of extremely energy-  
18      intensive raw materials. For everything else,  
19      the, the competitive effects are too small to be  
20      of concern.

21              MR. PARKHURST: Okay. Thank you very  
22      much.

23              MR. HOERNER: Thanks. 'Bye.

24              CHAIRPERSON BOYD: Are you on -- is  
25      there anyone else out there left on the phone who



1 would want to make a comment? Didn't think so.

2 MS. BROWN: I don't believe that we have  
3 any other public commenters. Do we?

4 CHAIRPERSON BOYD: We don't have much  
5 public.

6 MS. BROWN: And we have very few of us  
7 left.

8 So at this point, I think we'll just say  
9 thank you ball for being here, and the  
10 subcommittees will continue to work on their  
11 various preliminary and policy recommendations,  
12 and Ned and I, and others, will get back together  
13 and, and we will get out to you a schedule of our  
14 next steps.

15 And we do have a next meeting scheduled  
16 for July 11th and 12th. We have not decided on a  
17 location, so we're looking for input there.

18 MS. CORY: Did we make sure of that  
19 meeting?

20 CHAIRPERSON BOYD: Do that in L.A.

21 MS. BROWN: I'm sorry?

22 MS. CORY: Really. Did we make sure of  
23 that meeting?

24 MS. BROWN: Yes, because we're combining  
25 it with a, a hearing for the Integrated Energy

1 Policy Report. So what my concept was, was to  
2 have an advisory committee meeting on the first  
3 day, and then the hearing on the second day,  
4 involving Commissioner Boyd and Commissioner  
5 Geesman, and other folks involved in the larger  
6 biannual Energy Report proceeding. So that's my  
7 current working plan, unless we decide to do  
8 otherwise.

9 CHAIRPERSON BOYD: I think, those are  
10 biased towards meetings like that in Sacramento.  
11 But I agree, we're not sure yet.

12 MS. BROWN: So we can defer that  
13 discussion, and look for --

14 CHAIRPERSON BOYD: We'll communicate  
15 with everybody and let --

16 MS. BROWN: -- elsewhere.

17 CHAIRPERSON BOYD: I want to thank  
18 everybody, because this was a really  
19 intellectually stimulating day. It beats the heck  
20 out of what I do a lot of other days of the week,  
21 so -- and I think we've come a long way. I really  
22 do. So I, I commend everybody for what they've  
23 done. It's, it's really been helpful, and  
24 obviously you're just going to get -- the rest  
25 will be better.

1                   So, thank you all.

2                   (Thereupon, the meeting of the  
3           California Energy Commission Climate Advisory  
4           Committee was adjourned at 4:43 p.m.)

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## CERTIFICATE OF REPORTER

I, PETER PETTY, an Electronic Reporter,  
do hereby certify that I am a disinterested person  
herein; that I recorded the foregoing California  
Energy Commission Climate Change Advisory  
Committee meeting; that thereafter the recording  
was transcribed.

I further certify that I am not of  
counsel or attorney for any of the parties to said  
Advisory Committee meeting, or in any way  
interested in the outcome of said Advisory  
Committee meeting.

IN WITNESS WHEREOF, I have hereunto set  
my hand this 21st day of April, 2005.

PETERS SHORTHAND REPORTING CORPORATION (916) 362-2345